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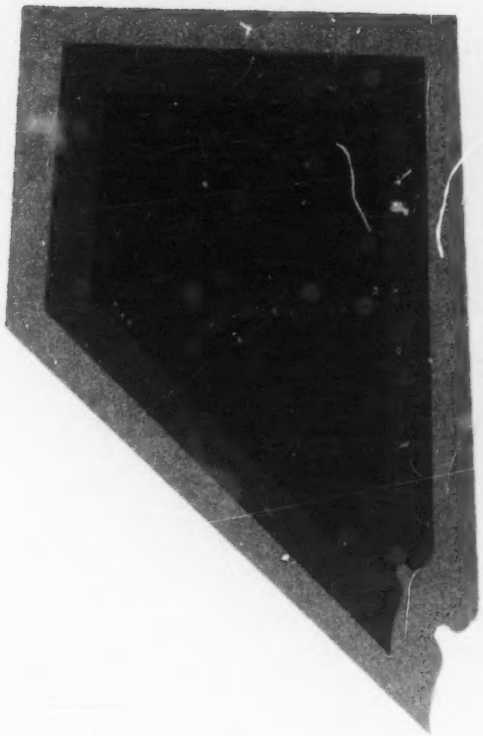

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In This Issue

Fall 1982 **Volume VI, No. 3**

Nevada Population Forecasts:
1980-2000 2
Sam Males and William Rosen

Regulatory Objectives and
The Expansion of Casino Gambling 4
William Eadington

The Business Executive, The CPA and
The Case for Confidentiality in
Their Tax Relationships 14
G. Stevenson Smith

How to Increase Employee
Motivation 19
Philip C. Grant

The Public, Politicians and
The Information Dilemma 22
Roger A. Arnold

Nevada Economic Indicators
Statewide Statistical Data 26
Las Vegas SMSA Data 28
Reno SMSA Data 29
Nevada Statistical Data by County 30
Selected U.S. and Regional Economic Indicators 33

Papers available from the
Bureau of Business and Economic Research 34

Research Reports available from the
Bureau of Business and Economic Research 36

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Nevada Population Forecasts: 1980-2000

*By Sam Males and William Rosen**

This report presents county population forecasts for the State of Nevada. Preliminary projections were reviewed by appropriate planning agencies throughout the state and for the most part were deemed reasonable. In several instances where sufficient documentation was available, the forecasts were adjusted.

Section I presents a theoretical discussion of several of the most widely used forecasting methodologies, and Section II addresses empirical problems specific to Nevada and the methodology used. The actual forecasts are found in Table 1.

County Population Forecasting

The two most sophisticated and widely used methods of population forecasting are:

(1) The population cohort survival model, which is linked to the economic and demographic characteristics of the relevant region, and

(2) The use of a stochastic population equation.

Other methods include simple time trend analysis and the use of professional judgment only. The latter two approaches have historically proven to be relatively unsuccessful as forecasting models.[1]

The most accurate method has proven to be the population cohort survival model. This model estimates natural population increases (decreases) by age, sex, and/or other desired demographic factors. In addition, it relates net migration to the region's economic health and past migration rates. Healthy economies attract outside workers and migrants, while net out migration tends to occur in declining regions.

The stochastic population equation is a single statistical equation which is not disaggregated with respect to demographic characteristics. It is consequently less precise than the cohort survival technique. Common to both of the above forecast approaches is the need for reliable projections of the exogenous economic and demographic factors.

The primary difficulty with using the cohort or stochastic equation method on a county-by-county basis is the paucity of data for the smaller counties. Moreover, reliable forecasts of the exogenous economic and demographic factors for each county are typically not available, and state planners do not have the resources to maintain population/economic models for each individual county.

The approach to county population forecasting adopted by most states is to project total population for the state and then systematically allocate a share of this total to each county (hereafter, referred to as the "share approach.")[2] Nebraska, Ohio, Kentucky, Indiana, and Florida have forwarded to the Bureau specific information about their county population forecasts. These states employ the share approach although their socio-economic and demographic features greatly differ. Nebraska, for example, is a fairly stable agricultural state, while Florida is subject to major flows of in-migrants.

The share technique requires forecasts of total state population and knowledge of the trends in shares for each county. State population should be forecasted by one of the two methods discussed above. The projected county share can be mathematically calculated:

$$(1)\quad S_{i,t+m} = \left(\frac{S_{i,t}-S_{i,t-n}}{n}\right) m + S_{i,t}$$

where:

t = time period i,..., n, ...m

S_i = share of state population in county i, where $S_i = \frac{CPOP_{it}}{TPOP_t}$

$CPOP_{it}$ = population of county i at time t

$TPOP_t$ = state population at time t

$S_{i,t}$ = current time period share for county i

$S_{i,t-n}$ = share of county i n periods past

$S_{i,t+m}$ = projected share of county i m periods in the future.

Equation (1) states that projected county allocations are related to current county shares and to historical trends in county shares. Counties with declining (increasing) shares in the past are projected to have declining (increasing) shares in the future. As an example, if county A had a 7% share of the state population in 1970, but its share declines to 5% in 1980, equation (1) will project a 4% share for county A in 1985, and a 3% share in 1990.

**Sam Males is the Acting Director of the Bureau of Business and Economic Research and William Rosen is Assistant Professor of Economics and Research Associate in the Bureau of Business and Economic Research, College of Business Administration, University of Nevada, Reno.*

TABLE 1

Nevada Population Forecasts by County
1980-2000

	1980	1985	1990	1995	2000
CARSON CITY	32,022	40,097	50,348	55,588	61,295
CHURCHILL	13,917	16,370	19,258	20,041	20,840
CLARK	463,087	572,138	707,027	804,630	915,784
DOUGLAS	19,421	26,360	35,872	43,018	51,488
ELKO	17,269	20,313	23,789	26,265	28,962
ESMERALDA	777	936	1,133	1,251	1,379
EUREKA	1,198	1,451	1,762	1,945	2,145
HUMBOLDT	9,434	11,589	14,223	15,398	16,703
LANDER	4,076	5,055	6,293	6,948	7,662
LINCOLN	3,732	4,651	5,790	6,393	7,049
LYON	13,594	17,022	21,272	23,486	25,897
MINERAL	6,217	6,864	7,552	7,365	7,202
NYE	9,048	11,330	14,187	15,664	17,294
PERSHING	3,408	4,028	4,783	5,002	5,210
STOREY	1,503	1,846	2,266	2,502	2,758
WASHOE	193,623	239,817	293,519	321,162	351,049
WHITE PINE	8,167	8,752	12,845	10,235	10,235
	800,493	988,619	1,221,919	1,366,893	1,532,952

Prepared for the State Planning Coordinator's Office by the Bureau of Business and Economic Research, University of Nevada, Reno September, 1982.

County Population Projections: Nevada

The share method is well suited for Nevada. Most Nevada counties are extremely small and population/economic models have not been developed (Washoe County, the second largest county in Nevada, only recently completed a population cohort survival/econometric model.)[1]

As a first step, a preliminary population forecast was developed for the State of Nevada. For the period 1980-1990, the average annual growth rate was seen as declining in the same percentage as the growth rate decline from 1960-1970 to 1970-1980; i.e.:

$$\frac{\text{growth rate 70-80}}{\text{growth rate 60-70}} = \frac{5.06}{5.53} = .915$$

This produced an annual average growth rate of 4.63 percent for this period. This compared favorably with several other forecasts that were available. The Census Bureau produced a state forecast for 1984 by applying 1970 to 1980 net migration patterns to their 1981 estimates. This produced an annual average growth rate of 4.9 percent. Further, the Nevada Employment Security Research Department forecast an annual average change in state employment of 5.1 percent. The state forecast for 1978-2000 produced by the Regional Economic Analysis Division of the Bureau of Economic Analysis was used to develop preliminary forecasts for the period 1990-2000. Their annual average growth rate for 1978-2000 was 3.3 percent. This growth rate was applied to the 1980 census figure to produce a state total for the year 2000. The 4.63 percent annual average growth forecast for 1980-1990 necessitated a decline to a 2.0 percent annual average growth rate for the period 1990-2000 in order to converge on the forecast of 3.3 percent for the 20 year period.

After the state control was developed, the changing share method was applied to all counties. The relative smallness of some of Nevada's counties presented certain numerical problems when utilizing the share approach. In a few cases, counties with historically slow population growth rates were projected to suddenly grow quite fast. Some counties with historically declining population shares had projected shares which were less than zero during the 1990's. In these instances, modifications were made to produce more reasonable growth rates. The largest adjustment made was for Clark County where our preliminary projection was reduced after reviewing the population forecast prepared by the Clark County Department of Comprehensive Planning. In addition, several of the county forecasts were adjusted where it was felt that the researchers had better information or received input from the local planning agencies; e.g., White Pine County with its scheduled power plant construction. After all adjustments, the counties were summed to produce a new state population total.

The preliminary forecasts are presented in Table 1.

Footnotes:

[1]For a further discussion see Krueckeberg, D.A. and Silvers, A.L., *Urban Planning Analysis: Methods and Models.*

[2]Share projections are based upon the census data in 1970 and 1980, as this is the most reliable population data available.

[3]For a discussion, see Hester, John and Rosen, William E., "The Washoe County Annual Econometric Model," *Nevada Review of Business and Economics,* Fall 1981.

Regulatory Objectives and The Expansion of Casino Gambling

*By William R. Eadington**

The author reviews the distinctive characteristics of casino gambling in Nevada, Atlantic City, New Jersey, the Province of Alberta, Canada, and England. Arguments for and against legalization of casino gambling are evaluated as well as the potential objectives of regulating the casino industry. The author concludes that "whether the expansion of casino gaming in various jurisdictions will culminate in a mature, respected, and responsible industry, or in a political backlash that undermines its very existence, can only be surmised at this point."

Since the end of World War II, the gaming industry has been an important economic and political force in Nevada. However, until the mid-1970's, Nevada was the only jurisdiction in North America, excluding the Carribean, which had legalized and regulated casino gambling operations. In 1976, New Jersey voters approved a referendum issue that authorized legal casinos in the seaside resort community of Atlantic City. The first casino operation did not open in Atlantic City until May, 1978, but by the end of 1981, there were nine casino-hotel complexes in operation in Atlantic City, which generated $1.1 billion in gross gaming revenues in 1981, 44% of the volume of all of Nevada's casinos for that year.

Because of the rapid growth of the Atlantic City gaming industry and its tremendous revenue generation, along with other important factors, a number of other jurisdictions in the United States and Canada have seriously examined the desirability of creating a legal casino industry, with appropriate constraints. In 1978 and again in 1980, the State of New York passed legislation that could have eventually led to legal casinos in that state; however, in both instances, the necessary follow-up legislation was not enacted. In 1978, the voters of Florida rejected a referendum which would have authorized casino operations in the Miami area. In 1981, the Massachusetts Legislature considered legalizing casinos in two communities, Hull and Adams, but failed to do so by the end of the legislative session. In 1978, the Province of Quebec released a report indicating its interest in establishing a legal casino gaming industry; as of this writing, the matter is still under active consideration.[1] Finally, since 1977, the Province of Alberta has authorized and licensed charitable organizations to operate casinos for their own benefit two nights per year. This has led to the creation of relatively permanent casino operations in the cities of Edmunton and Calgary which generated nearly $15 million (Canadian) in gross gaming revenues in 1980.[2]

The lure of legalizing casinos for the profit and revenue potential they hold is tempered by a number of political and social risks that a legal casino industry could create. Among the more important of these are: fears of infiltration of the commercial gaming industry by undesirable characters or organized crime elements who might skim gambling profits and corrupt political processes; fears of increased social costs on the communities where casinos are present and on individuals who are unable to cope with gambiing; concerns that the casino gaming industry can't be regulated and controlled in such a way that aggregate social benefits will exceed aggregate social costs; and questions concerning the morality of state sanctioned commercial gambling. Because of these factors, and the apparent irreversibility of a decision to legalize casinos due to the creation of property rights and various economic dependencies, jurisdictions have not moved rapidly to legalize casinos. However, the pressures to legalize still remain.

It is the purpose of this study to examine the factors that have contributed to the debate concerning the spread of gambling and specifically casino gambling, and to note how various jurisdictions, including Nevada and New Jersey, have attempted to deal with the positive and negative implications associated with the presence of casino gaming operations. This study will also look at some other jurisdictions with legal casinos or casino games, and present a general model that can explain a number of the underlying economic and political forces that bring about growth and change in a gaming industry.

Part I examines the present status of casino gambling in four jurisdictions: Nevada, New Jersey, the Province of Alberta, Canada, and England. Brief descriptions of economic performance and the major characteristics of the regulation of the industry are discussed. Part II develops a conceptual framework for the legalization and regulation of casino gambling by first examining the potential "interested parties" in a jurisdiction, and then evaluating the arguments for and against legalization, and the potential objectives of regulating a legal casino industry. Part III considers the growth and expansionary implications, both economic and political, that emerge from different actual

**William R. Eadington is Professor of Economics, College of Business Administration, University of Nevada, Reno.*

regulatory structures. These implications are then discussed in terms of the experience with casino gambling within each of the four jurisdictions.

One of the major purposes of this study is to provide a perspective on the various approaches that have been taken in the regulation of casino gambling, and what the implications of various regulatory structures are with respect to the social benefits, social costs, and growth of casino gambling in a particular jurisdiction. The major underlying thesis is as follows: Casino gambling, when it is taken from an illegal status to a legal status, creates substantial demand for the legal gambling services. The demand emanates from potential players who wish to participate in legal gambling activities and consequently creates a situation where excess revenues (revenues less costs of supplying gambling services) will be earned. The legislation and regulations governing casino gaming will divide the excess revenues among the "revenue sharers," which could include the casino operators, various levels of government, charitable or other "needy" organizations, or other beneficiaries. For various reasons, the ability to extract excess revenues from potential players is often limited by statute or regulation. However, to the extent that the revenue sharers perceive the opportunities to earn a greater volume of excess revenues, and to the extent that they can influence the restricting statutes or regulations through lobbying or other political efforts, they will attempt to influence the legislators or policy makers to bring about those expansions.

I. Casino Gambling, Economic Performance, and Regulatory Objectives

In the State of Nevada, the gaming and tourism industry acts as the state's major employer, its major taxpayer, the supplier of its major "export" (gaming and tourism services), and the main source of out-of-state revenues for the state and local private sector economies. In 1981, gaming operations in the state generated gross gaming revenues of $2,462.7 million, an increase of 8.3% over the previous year. Total revenues for the 137 gaming facilities with gross gaming revenues of $1 million or more were nearly $4 billion. The major tax for Nevada emanating from the gaming industry is the 5.75% gross gaming revenue tax, which generated $126.3 million in state general fund revenues in 1981; this amounted to approximately 36% of the state's general fund revenue collections. Total employment in the hotel, gaming and recreation sector averaged 115,100 in 1981, which represents 27.9% of Nevada's total employment. The gaming industry generated approximately $400 million in net operating income before Federal income taxes for fiscal 1981.

The economic performance is strongest in the larger casino and casino-hotel complex operations, with the largest 48 operations generating over 80% of the industry's total revenues and more than 90% of the net operating income. Nearly two thirds of all gross gaming revenues are generated in the Las Vegas area, with 20% coming from Washoe County (Reno-Sparks), and another 9.5% from Douglas County (South Lake Tahoe). The balance of the state accounts for only 4.2% of gross gaming revenues.[3]

Casino gambling has been legal in Nevada since 1931, and the regulation and control of the industry have evolved to its present status over much of that period, with the major regulatory structure being formulated between 1955 and 1961.[4] The major duties and concerns of the state regulatory bodies, the Nevada Gaming Control Board and the Nevada Gaming Commission, are to insure that casino owners and key employees have suitable character and background to hold a casino license, to determine the sources and suitability of financing for casino projects, and to insure that gross gaming revenues are being fully reported by gaming operations. A secondary level of concern deals with the integrity of gaming operations and the financial solvency of individual gaming operations.

In a broad sense, it can be argued that gaming regulation in Nevada attempts to fulfill two objectives. First, regulation must be strong and effective enough to demonstrate that, in the main, Nevada casinos do not have significant problems with either hidden ownership by individuals who would not be eligible, because of background, for a gaming license, or with "skimmed" (unreported for tax purposes) gaming revenues.[5] However, as compared to other jurisdictions, Nevada's approach to gaming regulation tends toward the "laissez-faire" end of the scale. Because the State of Nevada is so economically dependent on the performance and growth of the gaming and tourism industry, for jobs, tax revenues, and private incomes, the regulatory bodies are also quite sensitive to the economic impacts of regulation on the gaming industry itself. Thus, the posture of the regulatory bodies is to interfere with gaming operations only to the extent necessary to preserve the image of effective control, but not so much as to significantly hinder economic performance.[6] Thus, the second objective is to sustain and promote the economic viability of Nevada gaming.

Gaming in Atlantic City has had a quite different history, though it shares many characteristics in common with gaming in Nevada. By the end of 1981, there were nine casino-hotel complexes in operation in Atlantic City, and gross gaming revenues had increased 70.5% over the previous year. Total employment in the nine operations amounted to 27,500 as of February, 1982, which represents more than 25% of all those employed in the Atlantic City labor area.[7] The Casino Revenue Tax, which is levied at 8% of gross gaming revenues, generated $86.5 million during 1981; unlike Nevada, however, these revenues are earmarked to support programs for senior citizens and handicapped persons in the form of property and utility bill relief.[8]

Profitability of gaming operations in Atlantic City has not been as high as comparable Nevada properties. In 1981, net income before income taxes was $34.3 million, which is only 2.7% of total revenues; in comparison, the 16 largest casino operations on the Las Vegas Strip (with gross gaming revenues in excess of $20 million each) had net income of $263 million for fiscal 1981, which was 16.3% of total revenues.[9] Four of the nine operations incurred operating

losses during the year of 1981 in Atlantic City.

Determining the regulatory and statutory objectives of legalized casino operations in Atlantic City is much more straightforward than it is for Nevada. Following the 1976 referendum approving casinos in Atlantic City, the New Jersey Legislature passed the New Jersey Casino Control Act, which was signed into law on June 2, 1977. The Act states that "legalized casino gaming has been approved by the citizens of New Jersey as a unique tool of urban redevelopment for Atlantic City."[10] Thus, the major beneficiaries of the casino industry were intended to be the citizens of Atlantic City, and surrounding communities, who would be helped by the economic growth and development which the casino industry would stimulate. A second set of beneficiaries would be those who would directly share in the 8% gross gaming revenue tax imposed by the state. Those revenues are to be used "exclusively for reductions in property tax rates, rentals, telephone, gas, electric, and municipal utilities charges of eligible senior citizens and disabled residents of the State, as shall be provided by law."[11]

Because New Jersey was starting with a newly legalized industry, the state had considerable discretion in trying to create a "desirable" gaming industry. Thus, it was decided that smaller gaming operations, such as "slot arcades," casinos without hotel facilities or restaurants, or gaming devices located in public areas of other types of businesses, all of which are common in Nevada, would be prohibited in Atlantic City. The Casino Control Act stated that "restricting the issuance of casino licenses to major hotel and convention facilities is designed to assure that the existing nature and tone of the hospitality industry in New Jersey and in Atlantic City is preserved, and that the casino rooms licensed . . . are always offered and maintained as an integral element of such hospitality facilities, rather than as the industry unto themselves that they have become in other jurisdictions."[12] The Casino Control Act mandated that, in order for a facility to be eligible for a gaming license, it must have a minimum of 500 hotel rooms of at least 325 square feet each. It must also have a minimum of 25,000 square feet of meeting space, 40,000 square feet of dining, entertainment and indoor sports facilities, and a maximum amount of casino floor space, determined on a formula basis.[13] The intent of these explicit requirements was to prevent undercapitalized operations from being licensed, to insure that gaming operations in Atlantic City would be hospitality facilities first and casinos second, and to insure that gaming industry growth in Atlantic City would revitalize and strengthen the area as a convention city and as a destination resort, rather than as just a place with casinos. This same theme is reflected in the Casino Control Act's statements concerning advertising; it is required ". . . that gaming activity in Atlantic City is not the dominating advertising theme, that gaming is portrayed as an activity for adults conducted in an atmosphere of social graciousness, and that such advertisements are in no way deceptive."[14]

The Casino Control Act was also quite concerned with the potential for infiltration of the gaming industry or ancillary industries by individuals or organizations of unsavory character. As a result, the Act mandated strict licensing requirements for all casino employees and casino hotel employees, as well as for casino key employees. Furthermore, all casino service industries, such as suppliers of alcoholic beverages, food, linens, and limousine services, must also be licensed by the Commission.[15] In the same light, the Casino Control Act defined the participation in casino operations by a licensee as a revokable privilege ". . . to preclude the creation of any property right in any license, . . . the accrual of any value to the privilege of participation in gaming operations, or the transfer of any license, certificate, or reservation, and to require that participation in gaming be soleley conditioned upon the individual qualifications of the person seeking such privilege."[16]

Finally, the Casino Control Act included a number of provisions that would protect the casino patrons from potential price gouging by casinos in the various gambling games and devices. The Casino Control Commission was empowered to determine the rules of all gaming, including minimum wager limits and pay-off schedules; this was to be done in such a manner as to "assure the vitality of casino operations and fair odds to and maximum participation by casino patrons."[17] The statutes mandate that "each slot machine shall have a minimum payout of 83%."[18] The Act also requires that all billboards, signs, and other on-site advertising include the words, "Bet with your head, not over it." This, to some extent, can be interpreted as a form of consumer protection legislation applied to casino gaming in Atlantic City.

As compared to attempts of New Jersey officials to direct and shape the nature of casino gaming in Atlantic City in a desirable structure, the evolution of legal casino gambling in Alberta, Canada, seems almost accidental.[19] Casino games first legally appeared at the summer exhibitions in the major cities of Alberta in the late 1960's. The legal basis for allowing them came from a statute in the Canadian Criminal Code which lists various illegal gambling games and devices, but then goes on to say that those prohibitions ". . . do not apply to an agricultural fair or exhibition board within its own grounds and operated during the period of the annual fair on those grounds."[20] Initially, there was no government regulation of the casino games, and revenues were split between the exhibition boards and the gaming operators on a contractual basis. However, because of problems that arose concerning the integrity of the games and the character of the operators, law enforcement agencies conducted outside investigations against casino operators in 1975.[21]

However, the most substantial change in Alberta's casino industry did not occur until the fall of 1975. A charitable organization in Calgary persuaded the Attorney General's department to grant it a four day casino license to generate revenues for a children's summer camp project. The legal basis for this request was another portion of the Canadian Criminal Code, which stated, ". . . it is lawful . . . for a charitable or religious organization under the authority of a license issued by the Lieutenant Governor in Council of a Province . . . to conduct and manage a lottery scheme

in that province . . . if . . . the proceeds from the lottery scheme are used for a charitable or religious object or purpose. . . ."[22] After the success and publicity generated by this one case, the Attorney General's office was soon inundated with requests for casino applications from other charitable organizations. In 1976, the Attorney General created a Gaming Control Section to administer the licensing and control of charitable casinos. In light of the rapid expansion of demand from charitable orgainzations for casino licenses and the administrative difficulties that evolved in the licensing, investigation, and determination of policy concerning casino operations, an Alberta Gaming Commission was established in 1981.

Over the seven years that charitable casinos have been in operation in Alberta, the industry has evolved into a major revenue generator for the charitable organizations which can qualify for licenses. In 1980, for example, 429 licenses were issued for a total of 833 days of casino operations; each charitable organization is restricted to a maximum of two casino days per year. Gross win amounted to $14.8 million (Canadian), of which $12.6 million accrued to charitable organizations and $2.15 million to the exhibitions.[23] Nearly 92% of the casino winnings were generated in the two major Albertan cities of Edmunton and Calgary. After expenses, mainly management contracts to run the casinos, sponsoring organizations netted $9.5 million in 1980 from casino gaming operations. Thus, for a two-day casino, a charitable organization could expect to gross about $40,000 and net, after expenses, about $25,000 for charitable purposes.

There are a number of characteristics that are interesting to note concerning the Alberta casino gaming activity. First, since there is no permanent licensee, once a charitable organization becomes eligible for a license and is allotted one or two nights to run its casino, it contracts with a casino management team for gaming equipment, dealers and supervisory personnel, and location. The contract cannot be based on the percentage of win during the casino operation, but must be on a fixed fee basis. Second, there is a maximum of 30 games allowed in any one casino operation, and table limits are kept quite low by comparative standards; for example, blackjack limits are from a minimum of $2 to a maximum of $25 per wager. Until recently, Gaming Control Board and Gaming Commission decisions had restricted the number of locations in each major city to one per day, with none on Sundays; recently, however, the Commission decided to allow two locations in major cities on Friday and Saturday nights.

Because it was felt that no promotion of casinos was needed, entertainment at the casinos was prohibited. In a similar vein, liquor is not allowed on the casino premises, and the casinos close at midnight. Also, credit and even the cashing of checks is prohibited.

In spite of these restrictions, the casinos are full or close to full most of the hours they are in operation. However, because of the apparent excess demand for casino gambling in the two major cities, and the attempts of the regulatory bodies to restrict the extent of operations at any one time, there is little incentive for either charitable organizations or for gaming operators to provide any amenities above the bare essentials to run the casino games. As a result, the casino operations tend to be held in spartan, smoke-filled rooms, and the clientele seem to represent the lower end of the socio-economic strata.

As a final note, the province, as a matter of explicit decision, decided not to tax the gaming winnings of the casino operations. The reason cited for this is to avoid the potential creation of an economic dependence of the province on the gaming revenues generated by casinos. Thus, the only economic beneficiaries of Alberta's casino operations are the charitable organizations themselves, the casino operators and their labor forces, and the regulatory bodies which exist for the purpose of regulating and controlling the casino activities.

Casinos in England were legalized for quite different reasons than those in the United states or Canada.[24] It was felt that the demand for gambling was inherent in the human spirit, and that attempts to prohibit gambling by deeming it illegal would just drive the activity underground and create more serious problems than would occur if gambling were legalized but strictly regulated and controlled. In the Gaming Act of 1968, which is the present legislation that specifies the regulatory structure of the casino gaming industry in England, "the underlying principle is that casino facilities in Britain should be sufficient, but no more than sufficient, to satisfy an unstimulated demand for gaming which might otherwise seek an illegal outlet."[25] From this premise, a number of restrictions on the behavior of gaming operations emanate which are quite different to the nature and tone of restrictions that prevail in Nevada or in Atlantic City casino operations.

In order for a person to participate in casino games in a British casino, he must be a member of that particular casino club, or be a bona fide guest of a member. A casino club may or may not choose to require a membership fee. However, if a person wishes to become a member of a particular club, he must apply 48 hours prior to the time he wishes to gamble, and indicate his intention to gamble. The purpose for this rule is to prevent "impulse gambling" and to insure that the casino clubs indeed remain clubs.[26]

To prevent the artificial stimulation of demand for casino gambling, virtually all forms of advertising are prohibited. In a similar vein, casinos are not allowed to offer any live entertainment on the casino premises; it is argued that if this were permitted, people — in particularly young people — would be attracted to casinos by the music or entertainment and thus be introduced to a form of gambling for which they otherwise might have shown no inclination.[27] Also, casinos are allowed in only certain "permitted areas" throughout the country. This rule was passed as an explicit control on the aggregate presence of casinos in England. Generally speaking, "casino gaming was confined to large towns where the principal demand appeared to exist, and certain tourist and holiday centres where casinos have already become established."[28]

There are also a number of other restrictions that

differentiate British casinos from their American counterparts. Each casino, for example, is allowed only two slot machines; liquor cannot be served in the casino area, though it can be served in other parts of the club, but only for limited hours (until 10:00 p.m. or midnight, depending on the casino's location); and casino operations are restricted to between 2 p.m. and 3 a.m. or 4 a.m. daily.

A final area of restriction on British casinos has to do with the granting of credit. Casinos are not allowed to grant credit to any players. The only exception to this rule is that casinos are allowed to cash checks written by patrons under the express condition that the checks be processed through the patron's bank within two banking days. Thus, checks cannot be held indefinitely by casinos (which would be a form of granting credit), and patrons cannot buy back checks that they may have written earlier in the evening. The significance of this last point is supposedly that a person who, on impulse, had written a number of checks on his bank account during a single night should have to suffer the personal humiliation of having his banker learn he is the kind of person who would write a number of checks to finance his gambling in a single night.[29]

Altogether, in the late 1970's there were approximately 125 casinos operating in Britain, about 25 of them located in London. The total "drop" was £930 million in 1979-80, of which £697.5 million came from the London casino operations. Casino win, or gross gaming revenue, is not explicitly reported by casinos or government agencies in England, but it probably amounts to about 20% of drop. Thus, gross gaming revenues in England were in the vicinity of £190 million in 1979-80, with about 75% of that accruing to London casinos.

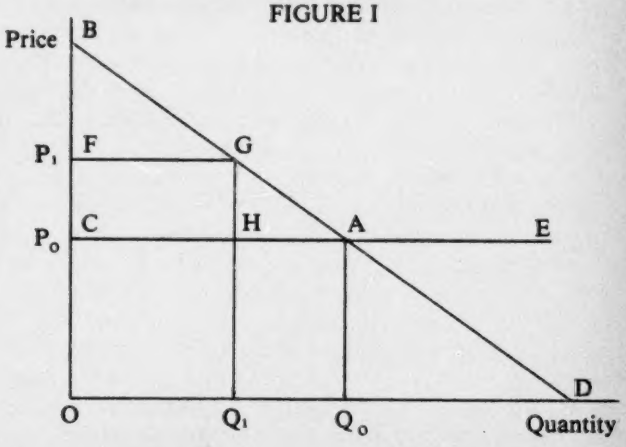
Since 1979, there have been a number of incidents which have come public that have led to the forfeiture of gaming licenses of three major casino operators in England: the Coral group, Ladbroke's and Playboy Ltd.[30] All three cases involved violations of the restrictions discussed above, mainly centering around illegal granting of credit or the soliciting of players from other clubs. The revocation of licenses clearly adversely affected the economic worth of the assets of the companies involved. The Gaming Board, under such circumstances, takes the position that "with the financial rewards being so great and the opportunity for abuse endemic, casino management should be expected to adhere strictly to the rules on pain of being closed down."[31] It is also within the power of the Gaming Board to issue a disqualification of the premises, which would prevent casino gaming from taking place at that location for a period of five years. This clearly would be a punitive action against a violator of the regulations which would have the effect of substantially reducing the economic value of his assets. Finally, even without the disqualification of the premises, if the Gaming Board closes down a casino because of violations, it has no obligation to grant a new casino license to return the total number back to its prior total. This can be justified on the basis that there may not be adequate demand for one more casino, even though there previously had been that many.[32]

In summary, the four jurisdictions of Nevada, Atlantic City, Alberta, and England, provide a broad spectrum on the different objectives and methods that can be used in the legalization and regulation of casino gambling. The variations in approaches of the four jurisdictions reflect different philosophies as to the appropriate role casino gaming should play in the various jurisdictions, and different pragmatic perspectives on the extent of economic exploitation which should be allowed by casino operations, by the government, or by other revenue sharers. A conceptual model to attempt to explain these different attitudes and approaches is the subject matter of the next section of this paper.

II. A Conceptualization of Legalization and Expansion of Casino Gambling

There are a number of ways that one can try to explain the process by which a political jurisdiction decides to legalize casinos and then establish the statutory and regulatory framework under which they will operate. The approach taken here will be to identify the major "interested parties", to postulate their major motivations, and then to classify the potential objectives that a regulatory structure might be designed to address, and how those objectives might be fulfilled by particular alternatives. Part III will then explore the relationship between the regulatory structure and the pressures for expansion of legal gambling activity.

FIGURE I



In traditional consumer theory, the major benefits that accrue to society from the existence of a competitive market for a particular commodity can be conceptually measured by "consumers' surplus."[33] The underlying idea behind consumers' surplus is relatively straightforward; it is measured by determining the aggregate of differences between what consumers would be willing and able to pay for the commodity in question, and what they actually pay for the commodity. In Figure 1, for example, BD represents market demand for the commodity, CAE reflects the long run supply (average cost, assumed constant) of the commodity, and the long run equilibrium price and quantity are reflected by P_0 and Q_0 respectively. The area in the triangle ABC is an indication of the extent of consumers'

surplus generated by the existence of this market.

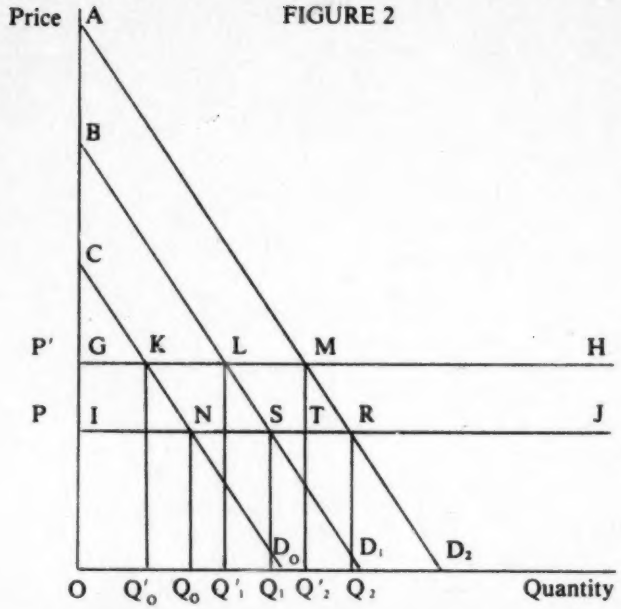
For society as a whole, it is argued, social well-being is maximized by allowing competitive forces to determine the market clearing price and quantity for the commodity (P_0 and Q_0). If the market were in some fashion monopolized, say, under the control of a single producer who could restrict entry, or because of government rules or restrictions, then other things being equal, the market clearing price would be higher and quantity would be lower (i.e., P_1 and Q_1). This would result in a reduction in consumers' surplus from ABC to GBF, an income transfer to producers of HGFC, and a "dead weight loss" of AGH. The dead weight loss is considered a destruction of net social benefits that would accrue under competition, but which do not exist if output is restricted below the competitive level of Q_0. Thus, the dead weight loss is an objective measure of the net cost to society of restricting production and exchange of a commodity.

Gambling is not just any commodity, however. Depending on the jurisdiction and the time period, society has some times chosen to prohibit gambling, to legalize it but under various constraints, or to legalize it with relatively few constraints. Thus, at least in the eyes of policy makers, maximization of consumers' surplus in the market for gambling services is inconsistent with the maximization of social well-being.

It is interesting to note that under the general competitive model, the only real beneficiary from the existence of the market is the consumer, or more accurately, the aggregate of consumers, who receive greater use value from the commodity than what they pay in exchange. Producers, in the long run, are unable to earn an excess profit, and are thus only compensated for their costs of production, including a normal profit (i.e., what could be earned if their resources were used elsewhere in the economy). It is only when producers can somehow restrict production, through cartels, monopoly, or government restrictions, that excess profits in the long term are possible.

An attempt to apply this framework to markets for gambling services becomes a bit more complicated. Figure 2 presents three different demand curves for gambling services, based on different assumptions of the legal status of gambling in the jurisdiction in question. (Price is probably most appropriately measured as the expected loss per unit wagered at the gambling activity; quantity would then measure the total volume of units wagered. Price times quantity would then reflect gross gaming revenues for the producers of gaming services.) Demand curve CD_0 is based on the assumption that casino gambling is illegal in the jurisdiction (i.e., New York State); BD_1 is based on the assumption that casino gambling is legal, but is constrained as a matter of policy (i.e., England); and AD_2 is based on the assumption that casino gambling is legal and unconstrained. The average cost of producing gambling services is given by the line IJ, and is assumed to be constant over the relevant range of output. Line GH represents the sum of the average costs of producing gambling services plus "taxes" that government may wish to impose on producers.

FIGURE 2



(The taxes could take the form of the expected costs of incarceration or fines if gambling were illegal; or they could take the form of direct tax levies, costs of complying to regulations, or mandated redistributions to other groups if gambling were legal.)

When the legalization of casino gambling is considered by a jurisdiction, there are usually a number or reasons cited as potential justifications. Among the arguments are: legalizing gambling will diminish the presence of illegal gambling in society; legal gambling is a painless way of raising needed tax revenues; legal casinos can revitalize otherwise declining destination resort areas; legal casinos can create jobs directly in the gaming and construction industries, and indirectly, through a multiplier process, in communities where casinos are located; and legal gambling can generate revenues for deserving organizations which do not have good alternatives for revenue generation. Interestingly, *the argument that gambling should be legalized for the benefit of consumers, by way of the consumers' surplus created, is seldom heard.* This is probably because, given most societies' sets of values, the activity of gambling is considered as less legitimate than others, and one where the interests of the consumer, whose willingness and ability to purchase the gambling services create a potential for the market in the first place, are secondary to the interests of other potential "revenue sharers," whose economic gain becomes the social reason behind expanding gambling legalization.

This ambivalence on the part of policy makers to the social well-being of consumers of gambling services creates an indeterminacy with respect to the appropriate distribution of "surplus" among the various "interested parties," the potential revenue sharers, when gambling is legalized. We could classify the identifiable interested parties as follows: consumers, or "players," who wish to consume gambling services; producers, who are motivated by profit, and who will pursue opportunities to increase the

profitability of gambling operations (as would any other profit motivated firms); suppliers of ancillary services to the gaming industry, whose motives are going to be similar to the producers; government, which may be an active revenue sharer through tax collections; and "charitable" organizations, which may be given a share of "taxes" through statutory or regulatory mandate. The public policy debate that would accompany a decision to legalize gambling, then, centers on the "appropriate" division of the consumers' surplus among the other interested parties.

For example, consider again Figure 2. If the jurisdiction chose to make gambling legal and unconstrained, then the effective demand curve would be AD_2, and if a competitive market were allowed to prevail, the market clearing price and quantity would be P and Q_2 respectively, and the gain in consumers' surplus, as compared to illegal demand (CD_o with price P') would be RAI less KCG. However, in this case, all the benefits accrue to the consumers. More likely, some form of taxes would be imposed to bring about the cost plus tax curve of GH, and a competitive equilibrium of price P' and quantity Q'_2. In this case, the total tax take would be TMGI, which would be allocated between, say, government and charitable organizations; portions could also be allocated to the costs of regulation. If the regulatory or statutory structure created restrictions on supply, or if other factors, such as inadequate access to financial capital or barriers to entry due to economies of scale, prevented production from reaching Q'_2, then producers could earn excess profits as long as the situation prevailed, which would also represent a transfer from consumer surplus. In cases where taxes are imposed, or supply is less than the long run equilibrium level, then a dead weight loss is created, but since it comes from the players' surplus, it may not be considered on an equal weight with the revenues that accrue in the tax take.

One of the obvious implications of this model is that when policy makers take casino gambling from illegal to legal status, they are creating considerable opportunities for economic gain for some or all the interested parties. However, because there is no objectively appropriate allocation of the "tax" revenues generated, this will be determined politically, and the political decisions of legislators and regulators can be quite valuable to the various interested parties. (This might provide one explanation of why legal gambling tends to be prone to scandals; there is an incentive for interested parties to share a portion of their economic gain with the legislators or regulators who have the power to bestow it upon them. Under certain circumstances, such sharing could be construed as a bribe.)

This model is also useful in providing insights into some of the social cost issues associated with gambling and casino gambling. The most common arguments against gambling legalization or the expansion of legalized gambling are: there is a strong tendency for characters of questionable character, or of "organized crime," to become associated with gambling operations; legal gambling can be a corrupting influence on politicians and political institutions; some players have a propensity to overindulge in gambling, which creates costs not only for themselves, but for those for whom they are responsible; gambling undermines the work ethic and a proper perspective on the relation between effort and financial reward; gambling, especially casino gambling, encourages other activities, such as prostitution and loan sharking which are socially undesirable; and gambling is, at least in some people's opinions, immoral. The reasons that gambling is kept illegal in some jurisdictions, or legalized and constrained in others, usually come back to some or all of the above arguments. Keeping gambling illegal does not prevent it from creating the above problems; however, legalizing or expanding legalized gambling can obviously exascerbate some or all of the above situations. The questions confronting policy makers when evaluating alternative legal statuses concerning gambling primarily involve the appropriate weighing of the social costs of gambling at various levels of activity against the potential economic gains to interested parties.

Examination of the social cost issues points out some of the weaknesses inherent in objectively evaluating alternatives concerning gambling in a social welfare context. First, it is fairly clear that most of the social costs are difficult to quantify and measure, either because the effects themselves are quite subtle and largely unmeasurable, such as political corruption or diminished social values, or are so ambiguous as to be, in the main, unobservable, as with compulsive gambling. The benefits, however, tend to be economic and readily quantifiable, as they show up in the form of tax revenues, profits, jobs created, or number of players serviced. Thus, if the cost-benefit methods place greater credibility on measurable criteria, they will place greater emphasis on the benefits of legalization or expansion than they will on the costs.

Second, there is an apparent inconsistency with the framework of consumers' surplus and the consumption of gambling services, at least with respect to so-called overindulgence problems. Economic choice theory is based on the premise that choices made by the individual are freely and rationally made, and that he knows his own preferences best. Compulsive gambling, however, implies that the affected player, when gambling, has no choice; he is obsessed by the activity and will continue to stay "in the action" until he "taps out," and runs out of money to gamble with. The different perception between gambling as a matter of free choice and gambling as a compulsion, or somewhat of a compulsion, raises the issue of whether the consumers' surplus that arises in a market for gambling services should be treated as a social benefit or as a social cost. If gambling were a fully legitimate commodity, and there were no tendency for people to overindulge in gambling, then there would be no argument against using the consumers' surplus as a net benefit to society. However, at the other extreme, if all gambling were compulsive, then all gambling losses incurred by players would only reflect an unchosen income transfer to producers of gambling services, and there would be no justification for using the surplus measure. The social costs created would be subsequent to this income transfer, which may or may not be measurable in a cost-benefit con-

text. Thus, in a cost-benefit framework, the treatment of gambling is analogous to the treatment of other activities with similar questionable social worth, such as cigarette smoking, prostitution, or demon rum. The broad question of whether society is better served by expansion or contraction of gambling services depends on the actual and perceived economic rationality of the potential consumers. If government tends toward paternalistic attitudes, or if in fact members of society do need protection from themselves, then the less gambling the better. If, on the other hand, government tends to allocate responsibility to individual citizens, and those citizens generally act responsibly, then gambling should exist to the level that the market will support it.

Portions of the above argument can be illustrated by examining Figure 2. Consider two otherwise identical societies, each with constrained legal casino gambling, and therefore demand curve BD_1. In one society, all gambling losses by players are matters of economically rational choice; they are purchasing gambling services in a manner quite similar to any other commodity. In the other society, all gambling losses by players are a matter of compulsion; they are unable to prevent themselves from throwing away their money at the gambling games, and perhaps even regret it after the fact. For the first society, when deciding whether to expand or contract gambling, it would obviously be better served to remove the constraints, move to demand curve AD_2, and let the market expand to quantity Q_2 at price P. If it then chose to tax gambling services to generate tax revenues of TMGI, this would create a dead weight loss of RMT, which would be an inefficiency brought about by the imposition of the tax. Without the tax, the net value of the market for gambling services would be RAI, all accruing to the consumers of those services, as compared to SBI, the welfare triangle that prevails with the constrained demand. Revenues accruing to producers of gambling services would be measured by the rectangle Q_2RIO, which in the long run would just allow them to recover their legitimate costs of production, along with earning a normal profit.

For the second society, a cost-benefit analysis would paint a quite different picture. The concept of consumers' surplus would not apply because consumers are not gaining anything by participating in gambling. If the activity is not taxed, then the rectangle Q_1SIO would reflect the income transfer to producers. That amount would be just adequate to allow producers to recover their costs and earn a normal profit, but to the extent that the income transfer from players to producers was involuntary, due to the compulsive nature of the act, it would represent a net loss to society (corrected, of course, for whatever vicarious pleasures the players were able to experience during the transference of income). In effect, the income transfer may not be perceived as legitimate in the eyes of that society, because it occurs involuntarily. Society's well-being would then be best served by attempting to minimize the extent of income transfer that comes from the "purchase" of gambling services. This will occur in the model with the prohibition of gambling (curve CD_0). If "taxation" comes in the form of increased law enforcement efforts against illegal gambling, then the best social policy will depend on whether income transfers from players are greater without the increased efforts than with them; this is a question of the price elasticity of demand for illegal gambling services (i.e., is Q_0NIO greater than $Q_0'KGO$).

As we examine the spectrum of potential jurisdictions that could consider legal gambling markets, we find some are quite paternalistic, some are quite willing to allocate responsibilities for individual actions to individuals themselves, and many are somewhere in between. When we examine the consumers of gambling services, we note that some of them may appear quite rational and responsible in their choices, some of them may appear quite compulsive and driven to chase their losses in the gambling games, but most of them remain a mystery to the outside observer in terms of tipping their hand toward or away from free choice actions. Herein lies the problem of evaluation of gambling by social welfare measures such as cost-benefit analysis. Both society's perception of paternalism vs. allocation of individual responsibility and the individual reality of free choice vs. compulsion are important in determining the appropriate perspective of measuring the benefits and costs of alternative legal statuses of gambling. The first issue is ideological and the second is empirical, but both are quite difficult to resolve. Therefore, as long as society's perception of paternalism vs. allocation of individual responsibility is subject to change, and as long as there are some members of society who are damaged by their own actions while gambling, there is unlikely to be a clear resolution on the extent of benefits and costs that accrue to society from the presence of gambling. Thus, in a sense, casino gambling will always be a less than fully legitimate institution.

III. Economic Imperatives and the Pressures for Expansion of Casino Gambling

When one examines the performance of casino gaming over time in any of the four jurisdictions discussed in Part I, the most striking feature that comes forth is the tremendous potential for expansion of the gaming activity. In Nevada, for example, growth in the gaming and tourism sector has been the predominant force for economic and population expansion since the 1950's. Since 1950, the state's population has increased fivefold, and during the 1970's, Nevada's population climbed 64%, making it the fastest growing state in the country. Virtually all of this growth is attributable to the expansion of gaming and tourism in Nevada, the jobs which that expansion created, and the populace who migrated into the state to fill those jobs.[34] In Atlantic City, the growth has been even more dramatic; the gaming industry generated over $1 billion in gaming winnings in its third full year of operation, a distinction the entire State of Nevada did not achieve until 1974, 43 years after casino legalization. In Alberta, gross gaming revenues in 1980 were more than four times as great as they had been in 1975, and in England, the total drop in casinos increased more than fourfold between 1972-73 and 1979-80.[35]

In each jurisdiction, it can be argued that the growth in

the volume of gambling taking place in casinos reflects either an unfilled demand which becomes observable as new gaming facilities are made available to the general public, or the possibility that the major determinants of demand, such as discretionary time and income, and the price of casino gambling relative to alternative leisure activities, have been changing favorably with respect to the demand for gambling. Undoubtedly both types of factors have been important in those jurisdictions. However, where expansion has taken place, such as in Nevada, Atlantic City and Alberta, it is clear that the primary motivation for the expansion is the excess profitability which can be earned by casino gaming operators or other revenue sharers by expanding the scope and extent of casino gambling.

However, unlike other industries and activities, the expansion of casino gaming has not always followed the presence of excess profitability and profit potential. For example, in Nevada in the 1960's, industry expansion was constrained not by the opportunities available but by the inability of the gaming industry to attract adequate capital to finance expansion. This was largely a function of the "illegitimacy" of the Nevada casino industry in the eyes of potential lenders, which itself was a result of both the alleged links between Nevada casinos and organized crime figures, and the morality issues that surround the issue of gambling.[36] At Lake Tahoe, Nevada, in the 1970's, there were a number of attempts to build new casino facilities, but there the major constraining factor was the environmental conflict that prevailed between casino expansion and the air, water and aesthetic qualities of the Tahoe region.[37] In Alberta and in England, the extent of gaming activity has been limited as an explicit policy decision, in spite of the potential for considerably greater economic exploitation than presently exists.

In varying degrees in all the jurisdictions that have been examined here, there is a feeling that allowing casino gaming to expand freely may create undesirable side effects for society in general or for some or all of the interested parties sharing in the industry's revenues. In Nevada, the concern is mainly with the integrity of operations and operators; it is feared that if the casino games are not run honestly, this could undermine the image of, and ultimately the demand for Nevada casino gaming. Alternatively, if the integrity of Nevada gaming operators is badly enough damaged, then the state runs the risk of losing autonomy of regulatory control over the industry to the Federal government. In Atlantic City, the concerns are similar insofar as the interested parties recognize the vulnerability of the casino industry to scandal which could affect either their ability or their privilege to exploit their markets. In addition, New Jersey, by statute, declared what type of a casino industry would be desirable and thus eliminated a broad spectrum of activities which could also be economically successful. However, both Nevada and Atlantic City are characterized as being primarily affected by economic factors; industry expansion will tend to follow the excess profit potential as long as other constraints, such as access to financing or environmental conflicts, do not preclude such expansion.

In England, the need for constraint is much more broadly perceived. Fundamentally, the legalization and control of casino gambling in that country is seen as the lesser of two evils (the other being prohibition), but nonetheless it is still an evil, or more correctly, an activity which can generate significant additional social costs if allowed to expand. Thus, various constraints, many of them clearly arbitrary, are enforced to keep the extent of gaming activity at its present scale.

In any jurisdiction where market forces for a particular industry are constrained as a political decision, there will be pressure from the potential economic beneficiaries to lobby for the purpose of having the constraints relaxed or removed. Where the constraints are somewhat arbitrary, or the purpose for the constraints is somewhat ambiguous, then the arguments for relaxation or removal are even stronger. This is much the case for casino gaming in various jurisdictions around the world today. Where casinos are illegal, there are various potential revenue sharers who see them as a means to various desirable ends, whether it is tax revenue generation, the raising of funds for charitable organizations, or the revitalization of declining areas. Where casinos are legal but constrained from fully exploiting marketing opportunities, as in England, Alberta, and to a lesser extent Atlantic City, the various interested parties lobby to improve their ability to exploit their markets. Finally, when a casino industry is effectively unconstrained in its marketing endeavors, it will use all the marketing and sales tools available to find new portions of the market to exploit.

But, as has been mentioned before, gambling is not just any activity; it carries stigmas which keep it less than fully acceptable in the eyes of many citizens. The arguments for the relaxation of constraints are generally economic and, as such, are quantifiable and relatively tangible. The arguments against relaxation of constraints, the increasing of social costs associated with the presence of casino gaming, tend to be more qualitative, more ambiguous, and consequently less convincing. However, this does not make the social costs less real. Because of these characteristics, it is likely that the revenue sharers will be successful in the short run in convincing policy makers to relax constraints.

However, to the extent that the social costs of expanded casino gaming actually exist, these costs will accumulate as casino gaming expands. If this is the case, eventually evidence will accumulate which points out the damaging characteristics of casino gaming, and this evidence can form the basis for reversing the process of gaming expansion. If history is an indicator, then gambling is the type of activity which will not reach a stable equilibrium level from market expansion. Rather, because of political opposition which may arise against its continuing existence, it has the potential of being eliminated as a legal entity by a political decision.[38]

John Ezell, author of *Fortune's Merry Wheel: A History of Lotteries in the United States*[39] has suggested that the vulnerability of a legal gaming industry to political elimination is primarily a function of the size of the legally sanc-

tioned gaming industry. As long as the industry is relatively small and local, then it is not feared. However, as it becomes larger, it becomes more significant and powerful, both economically and politically, and as such, it can pose a threat to other, more legitimate, economic or political interests. In a similar vein, there seems to be a change in the public's attitude concerning legal gambling when "the business in question moves beyond the point of being an asset to business in general or the government involved and comes to be viewed as an unequal or unfair competitor for dollars against what are viewed as more legitimate businesses or interests. Thus it ceases to be viewed as an asset and becomes a liability."[40]

Whether the expansion of casino gaming in various jurisdictions will culminate in a mature, respected, and responsible industry, or in a political backlash that undermines its very existence, can only be surmised at this point. On one hand, the expansion of casino gaming extends the amount of economic dependence of various entities on its continued performance, and this acts as a stabilizing factor. One the other hand, casino gambling is at best a frivolous activity for its participants, and if that activity does significant social damage, or poses real economic or political threats, then pressures can arise that carry the potential of once again delegating casino gaming into an illegal status.

Footnotes:

[1]See *Des Casinos Raport Final,* prepared by the Societe d'Exploitation des Loteries et Courses du Quebec, Groupe d'Analyse et de Recherche, Montreal, December, 1978. An English summary is also available.

[2]For a description of Alberta's casino gaming industry, see Colin S. Campbell, "Parasites and Paradoxes: Legalized Casino Gambling in Alberta," in *The Gambling Papers,* Volume I, Bureau of Business and Economic Research, University of Nevada Reno, 1982.

[3]State Gaming Control Board, *Nevada Gaming Abstract, 1981,* Carson City.

[4]See William R. Eadington and James Hattori, "A Legislative History of Gambling in Nevada," *Nevada Review of Business and Economics,* Spring, 1978.

[5]For an extensive discussion of the regulatory structure and objectives of the Nevada casino industry, see Jerome Skolnick, *House of Cards,* Little, Brown & Co., Boston, 1978.

[6]This theme is developed in considerable detail in William R. Eadington, "The Evolution of Corporate Gambling in Nevada," *Nevada Review of Business and Economics,* Spring, 1982.

[7]Atlantic City Casino Hotel Association, *Fact Sheet,* Atlantic City, April, 1982.

[8]State of New Jersey, "Casino Control Act" (P.L. 1977, c.110), Article 11, Section 145 c.

[9]Atlantic City Casino Hotel Association, *Summary of Casino Hotel Financial Activities,* April, 1982, and State Gaming Control Board, *op. cit.*

[10]State of New Jersey, *op. cit.,* Article 1, Section 1 (4).

[11]*Ibid.,* Article 11, Section 145 c.

[12]*Ibid.,* Article 1, Section 1 (5).

[13]*Ibid.,* Article 6, Section 83 d.

[14]*Ibid.,* Article 4, Section 70 o.

[15]*Ibid.,* Article 6, Section 91 and 92

[16]*Ibid.,* Article 1, Section 1 (8).

[17]*Ibid.,* Article 7, Section 100 d.

[18]*Ibid.*

[19]See Colin S. Campbell, *op. cit.,* and Colin S. Campbell, "The Alberta Casino Experience," paper presented at the Conference on Atlantic City, Tourism and Social Change, Stockton State College, Pomona, New Jersey, May, 1982.

[20]*Canadian Criminal Code,* Section 189 (3).

[21]Colin S. Campbell, in *The Gambling Papers, op. cit.,* p. 196.

[22]*Canadian Criminal Code,* Section 190 (1)(c)

[23]Alberta Attorney General, Gaming Control Branch, Edmunton, internal memoranda.

[24]For descriptions of the casino gaming industry and regulatory structure in England, see Jerome Skolnick, *op. cit.,* chapter 21, and the Royal Commission on Gambling, *Final Report* (The Rothschild Report), London, 1978, especially Section 18. See also Gordon Moody, "Legalized Gambling: For or Against Gamblers," in *The Gambling Papers, op. cit.,* Volume 9.

[25]The Royal Commission on Gambling, *op. cit.,* Section 18.18.

[26]*Ibid.,* Section 18.24 to 18.33.

[27]*Ibid.,* Section 18.47.

[28]*Ibid.,* Section 18.35.

[29]*Ibid.,* Section 18.67. See also Gordon Moody, *op. cit.*

[30]For a description of the events leading up to the forfeitures and the Gaming Board's reasoning, see David Miers, "The Mismanagement of Casino Gaming," *The British Journal of Criminology,* Vol. 21, No. 1, January, 1981, and David Miers, "Casino Corruption," unpublished manuscript, 1982.

[31]Miers, "Casino Corruption," *op. cit.,* p. 16.

[32]The Royal Commission on Gambling, *op. cit.,* Section 18.34 to 18.46.

[33]For a description of the methodology of cost-benefit analysis and some applications, see E.J. Mishan, *Cost-Benefit Analysis,* Praeger Publishers, New York, 1976, Parts I and II.

[34]See William R. Eadington, "Economic Trends in Nevada's Casino Gaming Industry," *National Tax Association Proceedings,* 1978.

[35]David Miers, "Casino Corruption," *op. cit.,* pp. 2-3, and Alberta Attorney General, *op. cit.*

[36]See William R. Eadington, "The Evolution of Corporate Gambling in Nevada," op. cit.

[37]See William R. Eadington and James S. Hattori, "Public Policy and Lake Tahoe: Economic Issues and Legislative History," in *Nevada Review of Business and Economics,* Summer, 1977.

[38]For a description of the events that led to the prohibition of gambling in Nevada in 1909, see Phillip I. Earl, "Veiling the Tiger: The Crusade Against Gambling in Nevada, 1859 to 1910," in *The Gambling Papers, op. cit.,* Vol. 7.

[39]Harvard University Press, Cambridge, Massachusetts, 1960.

[40]Remarks delivered before the Western History Association Annual Meetings, Kansas City, Missouri, October, 1980.

The Business Executive, The CPA and The Case for Confidentiality in Their Tax Relationships

*By G. Stevenson Smith**

Through a series of court cases, the Internal Revenue Service has been able to gain access to CPA-client tax information. This paper traces the decisions in these court cases, and the author suggests strategies for the business executive to use in protecting the confidentiality of tax information. In addition, a suggestion is made for a solution to the overall problem of confidentiality in this area.

In an earlier period, relationships between the business executive and his accountant were assumed to be very confidential. In 1905, the first issue of the *Journal of Accountancy* included the following statement about privileged communications by Robert Montgomery, a well-known accountant and an authority on auditing during this early period:

> "... the necessity for such procedure [privilege] seldom arises and the cases of accountants being called as witnesses and forced to disclose confidential communications are few, if, in fact, there have been any. As a matter of fact, it is hardly conceivable that such a case will ever occur, unless it is discovered by a prosecuting attorney, that a guilty defendant has destroyed incriminating books and papers . . . I venture to express the opinion that accountants need never fear, even under present conditions, that any judge will require them to disclose confidential matters unless the case is a grave one and public interest demands it."[1]

Conceptions of public interest have changed greatly since this statement was written. Since that time the accounting profession has accepted the concept of third-party responsibilities, and the Internal Revenue Service (IRS) has been formed with its own powers to issue subpoenas for the disclosure of tax information. An incident reflective of these changes was the jailing of an executive of Arthur Young & Company, a major accounting firm, in 1975 when he refused to disclose client information in a United States District Court proceeding because he believed such disclosures would be a violation of the confidentiality of his client.[2] In spite of these events, a majority of business executives who are the heads of corporations are unaware of the few defenses available to them when the court requires the disclosure of financial information by the CPA.[3]

Prior to proceeding further into the ramifications of this situation, *privileged communications* needs to be defined. Basically, *privilege* is the right not to allow any communications made between a client and his adviser to be disclosed in the courtroom without a client waiver. It is important to note that privilege is an evidentiary right, i.e., it applies to only courtroom disclosures. Although CPA-client privilege has been enacted in seventeen states,[4] at common law, this right is only granted to the attorney and his client.

Once a court summons is issued for financial information, it is usually too late to consider the alternatives available to protect financial information from courtroom disclosure. The alternatives that may provide some sort of defense for the business executive and his company should be considered prior to the receipt of a court summons. As most of these summons for disclosure involve IRS requests for information, the alternatives for protection of tax information will be outlined. In addition, another consideration will be the effect on relationships between business executives and CPAs from IRS summons for tax information from the CPA.

Attempted Defenses Against Courtroom Disclosures

The defenses that have been used to prevent disclosures of tax information have met with marginal levels of success. The methods that have been utilized are the following:

1. The Taxpayer's Fifth Amendment Privileges.
2. Maintaining the CPA's work product in the hands of the business executive.
3. Challenges about the relevancy of the requested data to the tax investigation.
4. Passing the tax records to the executive's attorney and relying on attorney-client privilege to protect the tax information.
5. Protection under state-created CPA-client privilege statutes.

These are the methods that have been used to prevent the disclosure of business tax information to the IRS in the courtroom. Each method will be examined briefly to determine its level of success, and from the results of the analysis, a guideline will be formulated that will provide a strategy for maintaining the confidentiality of tax information.

**G. Stevenson Smith is Associate Professor of Accounting, College of Business and Economics, West Virginia University, Morgantown, W. Virginia.*

The effectiveness of using the Fifth Amendment privileges to protect tax information was decided in a case before the United States Supreme Court.[5] The Court decided that Fifth Amendment privilege claims could not be used to protect information in the hands of a CPA from courtroom disclosure. In this case, the tax papers which had been prepared by the taxpayer were given to the CPA on a regular basis for a number of years, and they were returned to the taxpayer only after the court summons for them had been issued. The Supreme Court ruled that the Fifth Amendment privileges apply only when the records are in the actual possession of the individual. This would imply that if the individual had held the tax records in his possession, rather than giving them to a CPA, the records would have been protected under the Fifth Amendment privileges.

Guideline No. 1: Taxpayer prepared tax schedules should be kept in the possession of the taxpayer.

It should be noted that the availability of the Fifth Amendment privileges applies only to individuals. These types of rights do not extend to the corporate form of organization.

In another case,[6] Fifth Amendment privilege was claimed for the accountant's workpapers in the possession of the taxpayer. The court determined that Fifth Amendment privileges could not be claimed by the taxpayer for the CPA's workpapers because they do not belong to the client. Only in a situation where it could be proved that the client was the owner of the subpoenaed papers, as well as in possession of them, would there be any possibility of the client claiming the Fifth Amendment privilege. If the business executive purchased the workpapers from the CPA, the sale document would indicate that title had passed from the CPA to the client. A problem would develop from this purchase if the papers provided information about the audit procedures. In this case, the workproduct would need to remain confidential from the client because the yearly audit is fairly repetitive, and the disclosure to the client of the procedures followed in the audit would weaken its effectiveness. If the information in the workpapers remained sealed after the transfer had been made, it would meet the objective of non-disclosure of the audit procedures to the client. Of course, there is still no absolute assurance that this procedure would guarantee confidentiality if these papers were subpoenaed by the IRS.

Guideline No. 2: If an audit is performed, express concern to the CPA about the information that is contained in his workproduct, as all this information can be disclosed in the courtroom.

The Fourth Amendment provides protections against unreasonable searches and seizures, and its provisions have been used to protect tax information. In a court case on this issue,[7] an IRS summons for certain tax information from an accounting firm was protected from disclosure because the court held that its disclosure would be of only incidental value to the government's investigation of the corporation's tax return. It was successfully argued by the corporation that the information requested was not relevant to the investigation. The court's decision was based upon the "relevancy" of the information to the investigation.

In this case, the accounting firm, which had not been involved in the preparation of the company's tax return, had examined the company-prepared tax analysis files as part of the normal audit procedures to evaluate the possibility of contingent tax liabilities. As there are usually several methods of handling tax items, there is more potential for the IRS to disallow them when one method is preferred over another. This review uses a hypothetical evaluation of the tax methods used to determine the possibility of contingent liabilities arising from the tax position adopted. These contingent liabilities may need to be disclosed on the financial statements. The independent accounting firm performing the audit needs to perform this procedure as part of what is known as "generally accepted auditing standards." Under the facts of this case, the tax analysis file was protected from disclosure, but it would appear that this decision could only be applied on a case-by-case basis.

Guideline No. 3: The accounting firm performing the audit should be made aware of management's concern over the disclosure of confidential material to the IRS. Although the management of the firm needs to allow the auditor to inspect its tax analysis data, it should request that no copies of these papers be kept by the accounting firm. As this is a judgmental decision by the accounting firm, the response to this request will vary on a firm-by-firm basis.

Although it may appear that the question of the relevancy of subpoenaed information does provide some protection against a specific type of tax disclosure, i.e., the tax analysis file, the issue is not entirely clear at the present time.[8] As previously indicated, these court decisions have been applied on a case-by-case basis. In addition, the results of a more recent case have resulted in tax analysis data being turned over to the IRS. In this case,[9] the issue of IRS access to the tax accrual papers through the accounting firm's records was left undecided. The accounting firm against which the summons was issued turned the papers over to the IRS. After the papers were turned over to the IRS, the accounting firm appealed based on the relevancy issue. The appeal was dismissed by the court because the accounting firm had already relinquished the tax accrual workpapers to the IRS so that any appeal procedures were largely academic.[10] It appears that *if* the accounting firm had not turned over its workpapers, the case would have been decided on a different issue, and the question of whether the workpapers can be disclosed to the IRS would have been the question under consideration. The court concluded that the accounting firm had a sufficient interest in this matter to risk a contempt charge by not turning over the workpapers, but any appeal procedures after the papers were surrendered was not an issue.

In the most recent case decided on IRS access to tax accrual files the Second Circuit Court of Appeals decided that the tax accrual file *was relevant* to a tax investigation, but it created a workproduct privilege for the accountant's tax accrual workpapers.[11] The court held that a workproduct privilege should be "carved out to protect the independent audit process."[12] This decision was based on

the belief that this workproduct privilege would encourage the preparation of fair and honest financial statements.[13] The workproduct privilege only applies to the tax accrual workpapers and not to the general audit workpapers. The Federal government petitioned for a rehearing on this case, and the petition was denied. Therefore, at the present time the Second Circuit recognizes a workproduct privilege for the accountant's tax accrual workpapers. This decision supports the case-by-case approach that has been taken in this area by the courts. This case-by-case approach may eventually result in a U.S. Supreme Court decision on this matter.[14]

Another way of seeking protection for tax information is to transfer the accountant's workpapers to the businessman's attorney and resist the summons for disclosure by claiming attorney-client privilege. This, too, has been attempted, and it has not been a completely successful method of preventing the disclosure of tax information in the courtroom.[15] In these cases, the tax records had been turned over to the attorney after the IRS investigation had begun, i.e., the summons had been issued. Therefore, after a summons had been issued, the transferring of pre-existing documents prepared by the CPA, who had been engaged prior to the investigation, was not a successful technique.

It should be noted that in order for attorney-client privilege to exist, it must be clear that the relationship is in existence for legal advice and not business advice. If the latter situation is determined to exist then no attorney-client privilege can be assumed.

If the relationship with an attorney can be construed to be one where legal advice is rendered, and the accountant was engaged by the attorney, the attorney-client privilege relationship is likely to extend to the CPA.[16] The privilege would apply only to the CPA from the time he had been retained by the attorney; therefore, any advice rendered prior to the engagement by the attorney would be subject to courtroom disclosure. Of course, it is not anticipated that this type of a working relationship would be acceptable if an audit was being performed because of the need for independence. It would be expected that an attorney could engage a CPA relative to tax matters.

Guideline No. 4: When possible ensure that your CPA has been engaged by your attorney. Furthermore, ensure that your attorney is providing legal advice and not business advice.

At this point, it may appear that the best procedure would be to engage an attorney who is also a CPA for the preparation of tax records. This would provide the confidentiality of the attorney and the expertise of the CPA. Unfortunately, it has been determined that when an individual is engaged who is both an attorney and a CPA, privilege will only apply if the individual is working for the client as an attorney.[17] If the accountant-attorney performs functions typical of those duties done by an accountant then no privilege is assumed to exist. As the accountant's and attorney's functions in the tax area could overlap, it is likely that any overlapping functions would be interpreted as being accounting duties. Therefore, the engagement of a CPA-attorney has a higher probability of resulting in a waiver of any privilege rights for the client.

Guideline No. 5: Engage a tax attorney before hiring an individual who is actively performing the functions of both an attorney and a CPA.

As previously indicated, a number of states have enacted privilege for the CPA's client through state statutes. Attempts have been made to protect the tax information in the hands of the CPA from disclosure through the use of these state statutes, but in Federal court proceedings this has not been successful.[18] No state-created accountant-client privilege is recognized in Federal court proceedings or in an administrative hearing before the IRS.

Guideline No. 6: Do not attempt to rely on state-created privilege statutes to prevent disclosures of tax information on the Federal level.

After considering the various types of techniques that have been used to protect business tax information, it can be stated that the best overall procedure for protection is found in attorney-client privilege extended to the CPA. Whether the protection features under the Second Circuit's workproduct privilege will be extended remains to be determined. At the present time, the best defense against disclosure of tax accrual files in the Second Circuit is through the workproduct privilege.

Currently in other courts, if the client can ensure that his CPA has been engaged by his attorney and the attorney is providing legal advice and not business advice, there is a good likelihood that the client's tax information will be protected. It is questionable whether this type of relationship could be expected to exist if an audit is being performed by a CPA for the client. Therefore, if an audit is being performed, the best protection for tax information arises from the CPA's restraint in duplicating management-prepared tax accrual worksheets.

The IRS's Effect on the Business Executive and His CPA

Section 7602 of the Federal Tax Code contains broad language which allows the IRS potential access to any books, papers, records, or other data that may be relevant to assure the correctness of a tax return. This tax rule has been used to expand IRS investigations. One critical area of such investigations is the tax analysis files of larger corporations. These tax analysis files are used by the accounting firm that is performing the audit to determine the nature of any contingent tax liabilities that may develop.

The IRS has attempted to obtain this information under its summons power from the CPA once this information has been examined by the CPA and recorded in his workpapers. In some instances, the CPA's workpapers may contain exact copies of the tax analysis file developed by management. It is obvious that this type of information would be very useful to the IRS in its tax investigations. The corporate response to this situation is also obvious. The flow of financial information between corporate management and the CPA could diminish.

In response to the possible restrictions on tax information to the CPA performing the audit, the American Institute of

Certified Public Accountants' Auditing Standards Division has issued an auditing interpretation.[19] The interpretation stresses the need of the CPA to have complete access to the information necessary to determine the tax accrual. Furthermore, it indicates that if management restricts access to this information it could result in a qualified opinion or a disclaimer of opinion on the financial statements.[20]

This situation has the potential to cause working relationships between the CPA performing the audit and the business executive to deteriorate. The business executive is afraid that the CPA's use of the tax analysis files will result in easy IRS access to this data. The CPA, on the other hand, is responsible for performing an audit under generally accepted auditing standards. One of these standards requires a qualification or disclaimer of an opinion if the CPA's access to necessary data is restricted.

Any reduction of communications between the CPA and the business executive due to concerns over confidentiality is not conducive to the preparation of tax returns that meet a high quality standard nor to the preparation of accurate financial statements. Is there a solution to these problems? The answer is that there is no solution that is likely to be satisfactory to all parties involved.

As part of this solution, the business executive needs to express his concern to his CPA about the information which is contained in the CPA's workpapers because of the IRS's access to them. The CPA performing the audit needs to examine the tax analysis file, but as the amount of documentation that is placed in the workpapers is a judgmental factor, there is no absolute requirement for the type of data that needs to be included as long as it is sufficient for the CPA to give an opinion. Therefore, it is in this area that cooperative procedures should be established between corporations and their CPAs.

Excessive duplication of company-prepared schedules by the CPA can result in later difficulties for the corporation with the IRS. The CPA should be able to perform his auditing functions if he examines these documents but does not duplicate them. Statements such as the following would be deemed acceptable to the CPA in his workpapers, and at the same time, they would not provide the IRS with a road map for tax challenges against the company:

> Company officials stated that they are not aware of any items in the accounts or the tax returns that would be questionable in an examination by the IRS.

It also would be acceptable for summary tax data to appear in the workpapers but not information about potential liabilities unless it appears that the provision for liabilities needs to be increased. Under these latter conditions, increases in tax liabilities also should appear in summary form.

There is another sort of solution that would help ease difficulties that can develop in the working relationship between independent accountants and business executives. This is the concept of a limited tax privilege between the CPA and the business executive.

The Limited Tax Privilege

This limited tax privilege would be an evidentiary privilege created in Federal courts. It would be applicable to all CPA workpapers prepared incidental to a taxpayer's return or those tax schedules prepared in the completion of an audit. It would apply to the testimony of the CPA and his employees.

As an evidentiary privilege, it would apply tax privilege to courtroom proceedings or administrative hearings. This privilege would prevent tax information held by the CPA from being presented in the courtroom as evidence. It would not prevent the CPA who was performing the audit from examining the tax records nor would it prevent one CPA from examining the workproduct of another CPA as these events would occur outside the courtroom. Therefore, the CPA could determine the amount of tax contingencies in performing an audit without any effect on his responsibilities to third parties.[21]

Under this type of a privilege, the Federal government would have the same access to the client's records as it does at the present time, but the government would not have access to the CPA's workproduct when that workproduct deals with tax matters. The government could build its case from client data, but it would not be able to use the CPA as a summarizer and tabulator of that data.

Conclusions

The IRS's actions in recent years has created the potential for deterioration in the communications between the business executive and the CPA. The CPA is one of the most important advisers to the businessman, and this advisory relationship should continue. If the IRS continues to expand its investigative powers through courtroom summons of CPA records, the effectiveness of the CPA as an adviser will tend to decrease.

The irony of this situation was expressed well by the late Mr. Justice Douglas in his dissenting opinion in the U.S. Supreme Court case of *Couch* v. *U.S.* In part, Mr. Justice Douglas stated:

> "Our tax laws have become so complex that very few taxpayers can afford the luxury of completing their own returns without professional assistance. If a taxpayer now wants to insure the confidentiality and privacy of his records, however, he must forgo such assistance."[22]

Footnotes:

[1]Robert H. Montgomery, "Professional Standards: A Plea for Cooperation Among Accountants," *The Journal of Accountancy*, 1 (November, 1905), 36-37.

[2]*New York Times*, October 8, 1975, p. 67.

[3]George Stevenson Smith, "An Investigation into Accountant-Client Privileged Communications in the Courtroom" (unpublished Ph.D. dissertation, Department of Accounting, University of Arkansas), p. 157.

[4]ARIZ. REV. STAT. ANN., Section 32-749 (Supp. 1974); COLO. REV. STAT. ANN., Section 13-90-107 (f) (1974); FLA. STAT. ANN., Section 473.141 (Supp. 1978), this statues is scheduled to be repealed as of July 1, 1979; 1977 Ga Laws, Ch. 84-220 (b), Section 2; ILL. REV. STAT., Ch. III, Section 5533 (Smith-Hurd 1978); IND. ANN. STAT., Section 25-2-1-23 (1974); KY. REV. STAT. ANN., Section 325.440 (1972); LA. REV. STAT. ANN., Section 37.85 (1974); MD. ANN. CODE (Courts and Judicial Proceedings), Section 9-110 (1974); 1976 Mich. Legis. Service (West), Section 338.2120, P.A. 130; MO. REV. STAT. ANN., Section 326.151 (Supp.

1976); MONT. REV. CODES, Section 66-1841 (1970); NEV. REV. STAT., Section 49.125-205 (1973); N.M. STAT. ANN., Section 20-1-12 (c) (Supp. 1975); PA. STAT. ANN., tit. 63, Section 9.11a (Supp. 1976); TENN. CODE ANN., Section 62-143 (Supp. 1974).

[5]*Couch* v.*U.S.*, 409 U.S. 322 (1973).

[6]*U.S.* v. *Beattie*, 522 F. 2d 267 (2d Circ. 1975).

[7]*U.S.* v. *Coopers & Lybrand et al.* 77-1 U.S.T.C. Section 9216.

[8]Tax Report. *The Wall Street Journal*, April 15, 1981, p. 1. "The IRS promises its auditors won't demand tax accrual workpapers that CPAs prepare for clients, unless other data sources are exhausted." The practical effect of these guidelines remains to be determined.

[9]*U.S.* v. *Arthur Andersen & Co.*, 80-1 U.S.T.C. Section 9360.

[10]The court described this issue as being "moot." This determination is made when a decision rendered by the court can have no practical effect on the issue.

[11]*U.S.* v. *Arthur Young & Co., and Amerada Hess Corporation*, 677 F. 2d 211 (2d Circ. 1982).

[12]Workproduct privilege has been applied to papers and statements prepared by lawyers not because the documents were "privileged" but because it was considered necessary to shield these documents from disclosure in order to ensure that justice and the client's interests are protected. In this case, this protection was applied to the accountant's tax accrual workpapers.

[13]The Court believed that a workproduct privilege should be created for the accountant's tax accrual file because of the deterimental effects on communications a lack of privilege in this area would create between the auditor and management. Without a privilege, it is questionable whether management would want to disclose confidential information to the auditor. This in turn would defeat the government's purpose in providing a "fair and honest market in [securities] transactions." Without confidential relations, financial statements could not be prepared that would meet an adequate level of fairness and honesty. Therefore, the Court felt it was in the interest of the investing public, which relies on the financial statements prepared under the securities laws, that a workproduct privilege be created.

[14]At the present time the Second Circuit's decision has not been appealed to the U.S. Supreme Court. This appeal would be the next step in the Federal government's legal procedures to have this decision reversed.

[15]S. Fisher and C.D. Kasmire, 37 AFTR 2 76-1244 and 76-1 U.S.T.C. Section 9353.

[16]*U.S.* vs. *Kovel* 296 F. 2d 918 (1961).

[17]*In re Fisher*, 51 F. 2d 424 (1931). *U.S.* v. *Chin Lim Mow*, 12 FRD 433 (1952).

[18]*Falsone* v. *U.S.* 205 F. 2d 734 (1953).

[19]Official Releases. "Auditing Interpretation," *The Journal of Accountancy*, 151 (March, 1981), 122-123.

[20]The "normal" type of audit opinion is called an unqualified opinion. If the audit opinion is qualified, it is of a lesser quality than an unqualified opinion. A disclaimer of opinion occurs when the auditor believes he cannot form an opinion on the company's financial statements. Both the qualified opinion and the disclaimer of opinion can have serious consequences for a firm.

[21]There is a question as to whether privileged communications in a CPA-client relationship would reduce the CPA's independence from that client in the viewpoint of third parties. It would be expected that this would be an issue when the CPA was involved in an audit engagement but not when the CPA acted as the client's representative in tax matters. Therefore, this should not be a concern with a limited tax privilege.

[22]409 U.S. 388 (1973).

How to Increase Employee Motivation

*By Philip C. Grant**

The author explains that attempts to increase employee motivation seldom meet with great success because of failure to address the full spectrum of determinants of motivation. This is the third and final of a series of articles by Dr. Grant dealing with employee motivation.

When the insights provided by the Effort-Net-Return (ENR) model [2] of motivation are integrated with contributions from other prominent content and process theories [1] of motivation, four distinct strategies for increasing employee motivation become apparent. It is the intent of this paper to present and briefly discuss each of these strategies.

Though employee motivation can be increased by pursuing any one or combination of these strategies, few contemporary endeavors to boost motivation extend beyond the first one discussed below. This neglect is in great measure responsible for the widespread underutilization of human resources in today's organizations.

Improving the Reward Structure

Most attempts by management to increase employee motivation have focused on improving the reward structure. Employee effort expenditure (motivation) can be increased by improving the design of a job's reward structure. In making such improvement attention must be directed to the following key components of that structure: (1) the value of rewards and (2) the contingency of rewards.

Increasing the Value of Rewards

A number of major theories of motivation recognize that rewards motivate but only *if* they are valued by the employee. Promising a worker a promotion, for example, will not motivate the employee unless that employee wants (values) a promotion. The greater the employee's perception of the value of a reward, the greater the motivational force of that reward.

By better matching the rewards offered by the organization to employee needs, a higher level of effort can be elicited. Management must take time to investigate and determine the most intense of employee motives and then establish rewards capable of fulfilling those needs. Such rewards are the most valued and, therefore, the most motivating. Usually some mix of intrinsic and extrinsic rewards will best accommodate an employee's motive profile. It is important to note that different mixes will be best for different people since no two individuals have identical motive profiles.

Improved matching of rewards with needs is not, however, the only means of intensifying employee perception of reward value. Numerous other tactics can be used. Improving the scheduling (timing) of rewards, making rewards more equitable and increasing the magnitude of rewards can enhance perception of reward value and thus stimulate higher effort expenditure. Also, employee motivation can sometimes be increased by "training" employees to place higher value on the firm's present reward offerings.

Making Rewards More Contingent on Performance

Though an employee may perceive that rewards are of high value, that employee will not be enticed to perform unless the receipt of those rewards is seen as tied to the level of (contingent on) performance. Rewards, be they intrinsic or extrinsic, if fixed—assured the individual regardless of level of performance—will guarantee low, or no, motivation.

But perceiving that valued rewards are contingent on performance is not enough either. It is the *degree* of perceived contingency that is really critical. As the ENR model clearly shows, small increases in the degree of reward contingency can substantially intensify expended effort.

A variety of schemes can be applied to increase employee perception of the sensitivity of reward change to changes in performance. Establishing definitive performance-reward contracts that spell out what rewards will be received at what levels of performance can help. Increasing the validity and frequency of performance appraisals can help. And, the obvious, increasing the amount by which rewards increase for each additional unit of increase in performance will generate perception of greater contingency.

Adjusting the Cost Structure

The second strategy for increasing motivation involves operating on the cost structure (negative outcome structure) experienced by the employee. Two dimensions of cost struc-

**Philip C. Grant is a management consultant and the Head of the Department of Business Administration at Husson College in Bangor, Maine.*

ture can be altered to yield higher motivation: (1) the costs of high effort and (2) the penalties for low performance.

Cutting the Costs of High Effort

The ENR model demonstrates how the costs (fatigue, stress, boredom, frustration, etc.) associated with high employee effort expenditure can keep that expenditure far below the employee's effort potential. A reward structure can be well designed but the costs confronting the employee at high effort levels can "outweigh" the rewards causing motivation to be low. Employees will not increase effort if incremental negative outcomes exceed incremental positive outcomes.

To improve motivation management can act to keep down the fatigue, stress, boredom, frustration, etc., accompanying high effort. This allows employees to achieve greater employment satisfaction at higher effort levels. Better physical and social work environments, enriched jobs, strategically spaced work breaks and vacations, and at-work exercise programs represent practical means for reducing the undesirable consequences of high effort.

Also, the tensions and frustrations sometimes accompanying high effort can be lowered by assuring that the employee has high ability to perform. Better job training can, therefore, aid in cutting the perceived costs of high effort and thus enhance motivation.

Issuing Penalties for Low Performance

Though penalties are usually rejected by psychologists as inappropriate for motivating, ENR contends that penalties are useful. To support this contention let it be recognized that every successful organization in history has adopted some kind of disciplinary system which imposes penalties for unacceptable participant behavior, or poor performance. Indeed, penalties *must* be applied in response to low performance if rewards are fixed. This is the only way to prevent low performance from being viewed as more satisfying than high performance.

Penalties, negatively correlated with performance, have much the same impact on motivation as positively correlated rewards. They must have adquate negative value and a proper degree of inverse contingency to motivate. For the student of ENR it should be noted, however, that unlike reward functions, the absolute level of a penalty function as well as its degree of inverse contingency are critical determinants of effort expenditure.

Making clearer what penalties will be received at what levels of low performance, increasing the validity and frequency of performance appraisals, decreasing the time between performance appraisals and application of penalties, increasing the amount by which penalties increase for each additional unit of decrease in performance, increasing the absolute level of penalties (which raises the performance level at which penalties are first encountered) and better communicating the purpose of penalty structures to employees will foster acceptance of such structures and promote higher motivation.

Making Performance More Contingent On Effort

The third strategy for generating heightened motivation is making employee performance more sensitive to changes in employee effort. This is a major contribution of expectancy theory [3] and is incorporated in the effort-net return model. In order for employees to perceive that increased effort will yield higher rewards they must first feel that increased effort will yield better performance because rewards are a function of performance. Employees are not rewarded for effort—only for performance. Before an individual will exert high effort, that individual must sense a high contingent relationship between effort and performance as well as between performance and rewards.

Employee ability, work design and employee motivation are the three major determinants of employee-job performance. By increasing employee ability to perform and by improving the design of the work performed, employees will perceive that performance becomes highly dependent on the third determinant—motivation.

Increasing Ability

Employees with high ability sense that effort can result in success. Those without ability see high effort as futile. No matter how hard they work they sense no opportunity for achievement because of lack of ability.

Any training that management can provide to improve ability, knowledge and skill, or to upgrade desirable personality traits will increase employee perception of the sensitivity of performance change to effort change and will thus have a positive impact on motivation. It should be noted, though, that the employee's *belief* of ability possession is what is crucial here. An individual may have high ability but if the individual does not recognize such, that individual will not perceive a strong contingency relation between effort and performance.

Improving the Work Design

The second means for stimulating employee perception of a strong contingency relation between effort and performance is to improve the design of the work (including input to the job) performed by the employee. The quality of work design has the same impact on motivation as does the level of ability. If work is not designed for efficient and effective performance, the employee will likely say, "Why exert effort? Accomplishment is impossible. The job won't allow it!" But if work is structured well, the employee will sense that effort can pay off. Better performance is possible. And better performance means greater rewards.

Every component of the design of work usually represents an opportunity for improvement. Improving the quality of the tools and equipment with which the employee works, streamlining work methods and procedures followed by the employee and improving the office, or work station layout, will raise employee estimates of the chances that high effort will be fruitful. Also, by improving the kind, quality, quantity and timing of material and informational inputs (including feedback on goal achievement) to the job, the employee will perceive a stronger contingent relation be-

tween effort and performance.

A particularly important informational input is management's expectations of the employee. One will not sense that effort means accomplishment if one has a nebulous view of what directions and goals to pursue at work. Additionally, if the employee does not know what levels of performance are desirable, is faced with unrealistically difficult goals, or is not given sufficient time to accomplish a goal, that employee will perceive that increased effort is unlikely to yield results and will, therefore, lack the desire to produce.

Reducing the Impact of Competing Off-the-Job Systems

The fourth and final general strategy for increasing employee motivation involves operating on off-the-job goal systems in which the employee participates. Off-the-job systems may be at-work or away-from-work. At-work social gatherings, non-job related rap sessions and self interest pursuits on company time as well as away-from-work hobbies, clubs and family interests represent typical off-the-job goal systems.

The ENR model suggests that employee effort capacity is limited and that employees will distribute their limited energy among the multiple goal systems in which they participate such that their overall satisfaction will be maximized. Since an individual usually maximizes aggregate satisfaction by allocating some effort to off-the-job systems, that means less effort available for application to the job. Involvement in other systems may interfere with job motivation.

Reducing Off-the-Job Effort Expenditure

Management can increase on-the-job effort by reducing off-the-job effort. Off-the-job effort expenditure can be reduced by applying the *reverse* of the above-mentioned strategies to off-the-job systems. Of course, management does not have the degree of control over off-the-job employee involvement (be it at-work or away-from-work) that it has over the on-the-job system but through various techniques of persuasion and value training, employee perceptions of off-the-job rewards, costs and effort-performance linkages can be shaped.

It is also frequently possible for management to persuade those who do have a degree of control over an employee's motivation in an off-the-job system to take action to reduce that employee's effort expenditure in that system. The objective is to have the employee see that a reduction of a unit of effort in off-the-job systems will cause a smaller decrease in satisfaction than the increase in satisfaction possible in the on-the-job system when that unit of effort is expended on the job.

Making Off-the-Job Pursuits Congruent With Job Goals

This approach to diminishing the impact of competing off-the-job systems does not really result in increased on-the-job motivation. Instead, off-the-job motivation is applied to achievement of job goals.

Management can often alter the content of an employee's job to parallel more closely the kinds of activities experienced by the employee in off-the-job systems and vice versa. The nature of off-the-job systems and vice versa. The nature of off-the-job involvements can be altered by directly or indirectly influencing employees so that their achievements in off-the-job systems become supportive of (contribute to) accomplishment of on-the-job goals. For example, if an employee is found to spend a great deal of time at a hobby doing historical research, it might well be prudent to restructure the employee's job such that part of the job responsibility becomes the gathering of historical data. Or, if one's on-the-job role is, say, performing the public relations function, management may be able to help the employee acquire a similar compatible role in some off-the-job organization in which the employee holds membership.

By making on and off-the-job pursuits more resonant, accomplishments off the job aid job accomplishment. Job motivation is not actually increased but the total effort expenditure which impacts on job goal accomplishment *is* increased.

Conclusion

From the foregoing it is clear that a variety of avenues exists for increasing employee motivation. Analysis of the ENR model, which incorporates contributions from a number of major theories of motivation as well as providing some totally novel insights into the factors affecting motivation, suggests the four general strategies for eliciting greater employee effort which we have discussed.

Many programs adopted by organizations to improve worker motivation are unsuccessful because their thrusts are not sufficiently broad based. They tend to focus on only the first of the above strategies—reward structure improvement—neglecting the others. And those plans that attempt to improve reward structure commonly concentrate on only one component of that structure—reward value.

Regardless of the value of rewards, high motivation is unlikely if rewards are insufficiently contingent on performance, and if a job's cost structure and effort-performance linkages are faulty. Further, though all on-the-job forces may be in excellent array, significant "pull" from competing off-the-job interest systems can severely limit job effort. To maximize expended job related effort it is imperative that the four strategies be addressed simultaneously.

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The Public, Politicians and The Information Dilemma

*By Roger A. Arnold**

The author develops the theme that politicians have little or no incentive to change individual's preferences through education, but they do have incentive to match preferences of voters. It is observed that the electorate becomes disgruntled when adverse long-run consequences of economic policies emerge, and that legislation is often tilted toward pleasing special interests. The author concludes that there are occasional "shocks" which occur in the form of institutional changes. "A system of Hayekian general rules—would probably be enough to prevent many of the undesirable consequences of the information dilemma—mostly the special interest bias in legislation."

If we are ever to make advances in economic policy making, we must come to understand political economy. The reason is simple: economic policies are not made in a political vacuum. Specifically, we must come to understand ourselves, as members of the voting public, and also to understand politicians. A major objective of this paper is to provide a framework to advance us on our way to doing just that. The approach shall be institutionalist in the "public choice" or Buchanan-Tullock sense.[1] Namely, all individuals will be assumed to be rational utility maximizers who exhibit a certain predicted behavior in a given institutional setting.

Government From a Public Choice Perspective

At times individuals are only equipped with a "conspiracy theory of government" to explain what they see about them. The agents of government are seen as being greedy, narrowly selfish manipulators of the public. The theory is often incorrect.

Similarly, at times individuals are only equipped with the "benevolent despot theory of government," according to which those same agents of government are perceived to be wise, unselfish and public-minded. Fact is, government for whatever grand or low ideas one may have of it, is not best described by either of these two theories. Neither devils nor angels are fully descriptive of the men and women who comprise government.

Politicians, to choose a rather prominent subgroup of government, are in a real sense just "ordinary" individuals who behave as ordinary individuals would, given the present political setting. To develop a theme here, we might say that any individual's behavior depends—to a large degree—upon the environment in which he finds himself. Men act within a certain set of constraints; they choose their actions within a range of choices.

Given this, success in a given environment is dependent upon certain behavior. A businessman, for example, is not likely to be successful in a free market setting unless he is efficient, cost conscious and responsive to the preferences of the marketplace. Similarly, in a democratic setting, a politician is not likely to be successful unless he does what is needed to obtain votes. At a minimum, this requires the politician to match (or, at least, nearly match) the preferences of the median voter.[2]

To the median voter, here in 1982, this may seem unbelievable. He or she is led to ask how politicians could be attempting to match preferences today, and in the past, when so much exists on the national scene which is deplorable; for example, inflation, unemployment, low real economic growth and high interest rates.

Most politicians hire pollsters for the expressed purpose of finding out what voters think. There is certainly some "noise" in the results, but the process of separating it out is not particularly difficult, especially for someone who has an incentive.

We are left with the question: why is it that politicians have an incentive to please the majority of the voting public, and yet so much displeasure exists within this group? In developing the answer, contrast the situation in the public sector with what occurs in the private sector. In the latter, businessmen attempt to please the buying public, and largely do so. In the former, politicians try to please the voting public, and largely do not. Similar intentions bring about different outcomes in different situations.

Why the difference here? Why, if both businessmen and politicians seek to please the public, is one group so much more successful in meeting this objective than the other? There are principally two reasons. The first concerns individual choice in the private and public spheres. In the private sphere, an individual has a greater range of choice than he does in the public sphere. This being the case, he is less likely to feel dissatisfied. If, for example, an individual does not like a two-story house, he can purchase a one-story house; if he does not want to eat steak, he can eat lobster;

**Roger A. Arnold is Director, Center for Economic Education, and Assistant Professor of Economics, College of Business and Economics, University of Nevada, Las Vegas.*

if he does not like blue cars, he can buy a red one. We are assuming adequate wealth and income.

By comparison, the same wide range of choice does not exist in the public sphere. For instance, if an individual does not like the present level of national defense spending then that is largely too bad. He cannot move to his desired level of national defense spending as he can move to his desired house size.

This restraint holds for every activity the government undertakes. Once government has passed a law, that law holds for those persons who agree with it and for those who do not. The individual who agrees with it is satisfied, the one who doesn't is not.

The greater range of choice we have in the private sector comes about primarily because we are dealing with private goods rather than public goods. But, also, it is because in the private sector we encounter businesses, not *a* business; while in the public sector at the national level, we encounter *a* government, not governments. Whereas the private sector offers goods and services of different quantities, the public sector offers only a good or service of a given quantity and quality.

Completing the answer to our question, the second reason concerns the issue of information. Specifically, the nature, quantity and quality of the information that is needed before a "good" decision is made in each of the two sectors under discussion—private and public—vary considerably. Consider, for example, the type of information that is needed by a voter when it comes to economics issues.

Like it or not, economic policies have short- and long-run consequences. The increase in the money supply today will result in lower interest rates in a few weeks perhaps, but possibly also in inflation and higher interest rates along in time. For most individuals the primary effect (lower interest rates) is a plus, while the secondary effects (inflation and higher interest rates) is a minus. Unfortunately, most individuals see only the primary effects of economic policies; consequently, policies which appear desirable are advocated with little or no attention given to the long-run, secondary adverse effects of those policies.

The situation is markedly different in the private sector. Here there are few, if any, long-run consequences of the decisions that are made. Buying a pair of shoes does not have long-run consequences in the sense that "buying" a certain economic policy does.

The difference between the two sectors in this respect presents problems for individuals. They are placed in the position of having to possess much greater amounts of information when it comes to what they "buy" with their votes in the public sector than when it comes to what they buy with their dollars in the private sector.

All would be well to the extent that individuals had an incentive to acquire the greater amounts of information they need in the public sector, but they do not. Herein lies the dilemma: lack of information is the problem, yet few persons have an incentive to acquire information. The individual's cost-benefit calculation makes it so. It is a fact that if any individual invested in acquiring information concerning, say, the long-run consequences of different monetary policies, that investment would have a negative return.

It would have a positive return, however, if large numbers of individuals acquired the information and acted on it. Simply acquiring information in the public sector is an activity that produces benefits only if large numbers of individuals partake of it. If they do not, there are only costs connected with the activity, and given this, rational behavior dictates that one should not acquire the information.

Politicians and the Incentive to Educate

By almost anyone's standards, the information dilemma produces outcomes that are undesirable. The question that most often arises at this point is: why don't politicians inform the public as to the secondary, long-run, consequences of public (especially economic) policies?

Such a question is a reasonable one; nevertheless, below the surface of it is expressed a certain view of government which is, largely, unrealistic. The question is built upon the assumption that politicians are both educative and paternal in their instincts and actions. The assumption is an unreasonable one.

Politicians have little incentive to be either educative, assuming they understand things themselves, or paternal. That is to say, they have little incentive to change individuals' preferences through education. They do, however, have a huge incentive to match given preferences, whatever they may be. This is for the simple reason that changing preferences, through education, is a much more difficult, time-consuming, costly, and a less likely way to political success, than matching preferences.

Consider the time-consuming aspects of education. Most persons do not learn overnight, but usually over a period of months and years; consequently, our preferences are likely to change slowly. Even if we assume that a politician is knowledgable enough to educate the public, he can't usually wait for his teaching to bear fruit. Elections are never far enough away in time.

Not only do most politicians shy away from educating the public since there is so little time to do it, but also, for the reason that what they say is easily distorted by political opponents. A politician who takes it upon himself to educate the public implicitly conveys the message "this is the way it is." A political opponent can quite easily counter with "this is not the way it is." The public would justifiably be confused.

The same reaction would not be forthcoming if the politician seeks only to match the preferences of the public. Here the message he would be conveying is "it is the way you think it is." There is no successful counter for his political opponent. It is not likely that in this setting saying "it is not the way you think it is" would generate much favor; after all, the public has already been told it understands things.

The situation is one where the politician who matches preferences, rather than attempts to change them through education, will have a higher probability of obtaining votes than the politician who does not follow this strategy. To say

it differently, a politician who seeks to educate the public can be defeated by a politician who seeks to match the preferences of the public.

The reader may have some doubt as to all this because he may suspect that he has seen politicians who have sought to educate the public and have won elections. There is a time element to consider, however. In such cases, usually time has elapsed between the commencement of one act—educating the public—and the second act—political success. The interim period is when preferences were changing, so that the politician's success only came when the public began to accept what he had been saying all along. We can say, then, that at the point of success he matched the preferences of the public, or at least came closer to doing so than his political opponents.

It is "the present" that is of the greatest concern to most politicians, who like most individuals, will not trade the surer benefits of today for the uncertain benefits of tomorrow. It is not difficult to understand, then, that they will weigh more heavily the present preferences of the electorate than the preferences that might one day be.

Enter Special Interest Groups

The public's choice to stay uninformed on most political-public matters has not, as we noted, gone unnoticed by vote-seeking politicians. Nor has it gone unnoticed by special interest groups. Because of the information dilemma special interest groups have been able to direct legislation in ways they find fitting.

First, it is important to note that special interest groups (and their members, of course) have a much greater incentive to become informed on particular political-public matters than members of the general public. The reason is simple: particular types of issues impact them directly.

Consider Jones, for example, who as a member of the general public, has little, if any, incentive to know what is happening in Washington with respect to, say, agricultural policy.

But now consider Jones's expected behavior if he were a farmer. Surely it would be different. Now there would be a direct, and sometimes significant, impact on his livelihood from the overall structure of federal agricultural policy. Given this, we would expect him to be much more knowledgable on agricultural matters as a farmer than as a member of the general public. Most of us usually fall into at least one special interest group and know about political-public policies which affect us and are largely uninformed (rationally so) on all others.

This produces a consequence: politicians will have a biased incentive to respond to us as members of a special interest group rather than as members of the general public. In turn, this means much legislation will be special interest-oriented.

At first glance, this may seem contrary to what one would expect in a representative democrary. After all, as has been noted, votes are all-important. One might be led to think that a vote-seeking politician would simply note that proposed special interest legislation would aid only one-fiftieth of the population at the expense (albeit minor expense per person) of all others, and refrain for hurting the majority. What politician, after all, would give up forty-nine votes in order to get one?

Obviously none if this were the case; but it isn't. A politician who votes to help one person at the expense of forty-nine (or any multiple herein) would do so only if the one was informed on the proposed legislation and its consequences and the forty-nine were not. In other words, it is "good" politics to vote for special interest legislation when members of the general public are uninformed and thus are unlikely to base their votes in the next election on what they do not know. Sadly, the situation is one where politicians have largely handed the special interest groups substance, and the members of the general public have been left with rhetoric. Special interest groups, although few in number relative to the entire voting population, are informed on issues of relevance to them and are likely to reward—both in terms of votes and money—those politicians who vote their way.

The problem is compounded once we realize that politicians, besides responding to special interest groups for vote-seeking reasons, often create incorrect information in describing why they've done so. Simply stated, special interest legislation is always described by politicians as being "in the public interest." Agricultural subsidies, for instance, are never said to be strictly for the benefit of farmers. They are said to create price stability in the long run, which, it is emphasized, is in the long-run best interest of the consumer.

The rationalization goes largely unchallenged as long as it has the semblance of reasonableness, which it almost always does. The consumer hearing it might wonder if it is true or not, but is unlikely to expend the resources to find out one way or the other.

What Can Be Done?

Before continuing, let us succinctly recap the state of affairs: first, politicians are vote-maximizers; second, the public has little, if any, incentive to become informed on political-public matters; third, politicians will not educate the public; fourth, special interest groups are informed and consequently present politicians with a biased incentive to respond to them; fifth, politicians are involved in creating incorrect information to rationalize their actions; sixth, once again, the public has little, if any, incentive to separate truth from falsehood.

There would seem to be little way out of this dilemma. Who is going to help break out of the maze of events if no one has an incentive to do so? Apparently the "game" will go on, as is forever.

Fortunately, there are occasional "shocks" to the game which would appear to be exogenous, but, in fact, are endogenous. Such shocks come in the form of institutional changes. A system of Hayekian general rules, for example, would probably be enough to prevent many of the undesirable consequences of the information dilemma—most notably the special interest bias in legislation.[3]

Strictly adhered to, constitutional curbs on spending and tax limitations would also advance us forward,[4] as would

any institutional change which makes a move toward direct democracy and away from representative democracy.[5] The problem, of course, is getting there from here. In troubled times, proposed institutional changes are many, but adopting one or more of them is often quite difficult.

There is reason for hope, however. Throughout history men and women have been able to make major advancements when the game was stacked against them. When individuals come to realize—either intellectually or intuitively—that "something is wrong," they are ready to make, what at some other point in time would be considered, a radical change. In a constitutional democracy this implies a turn to the Constitution. No one can predict if or when this might occur; one can only note that it has happened before and it may happen again.

Summarizing Remarks

Politicians are not inherently "bad" persons, and the public is not inherently "ignorant" when it comes to political-public issues. In the present political setting, however, where there are few constitutional restrictions on the vote-buying powers of competing politicians, the micro motives of each group together produce a government which is capable of creating as many problems as it solves.

All was not made well when democracy arrived on the scene. It is, for sure, the least worse of all types of government as Winston Churchill noted, but within it still lie the seeds of a destructive force. Government can only be made better by first recognizing, and then acting on, the fact that politicians are vote-maximizers, that they are not educators, that the public has no incentive to become informed on public sector issues, and that incorrect information is a commodity politicians (with the help of special interest groups) usually produce in surplus.

Footnotes:

[1]See Buchanan and Tullock, *The Calculus of Consent*. University of Michigan Press: Ann Arbor, 1962.

[2]For a discussion of the median voter model see Anthony Downs, *An Economic Theory of Democracy*. Harper and Row, New York, 1957.

[3]On this, see F.A. Hayek, *Law, Legislation and Liberty, Volume III*. The University of Chicago Press, Chicago, 1979.

[4]See Buchanan and Wagner, *Democracy in Deficit: The Political Legacy of Lord Keynes*. Academic Press, New York, 1977.

[5]See Arnold and Wyrick, "Budgetary Referenda: An Efficient Alternative to Representative Democracy" in *Cato Journal*, Vol. 2, No. 2 (Fall 1982), Forthcoming.

Nevada Economic Indicators

Statewide Statistical Data

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982	PERCENT CHANGE 2nd Quarter-1981 2nd Quarter-1982
Total Labor Force (000's)	484.6†	487.0†	490.3	487.3	+ 1.8	+ 5.3
Total Employment (000's)	442.5†	444.5†	444.9	444.0	+ 1.2	+ 3.1
Unemployment (000's)	41.9†	42.3†	45.4	43.2	+ 8.2	+ 34.3
Unemployment Rate	6.8†	8.7†	9.3	8.3	– .8	+ 18.7
Unemployment Rate (Seasonally Adjusted)	9.0†	9.2†	9.0	9.1	+ 14.3	+ 27.7
Agricultural Empl. (000's)	5.0†	5.3	6.3	5.5	+ 50.9	+ .6
Establishment Based Industrial Employment						
Total All Industries (000's)	413.2†	416.0†	417.6	415.6	+ .9	+ .7
Mining	7.5†	7.5†	7.4	7.5	– 2.2	– 6.3
Contract Construction	22.8†	22.9†	23.3	23.0	+ 1.5	– 12.7
Manufacturing	20.3†	20.2†	20.3	20.3	– 1.0	– 1.1
Transportation & Utilities						
Transportation	13.3†	13.4†	13.4	13.4	+ .5	+ 1.0
Railroads	1.8†	1.8†	1.8	1.8	+ 0.0	+ 0.0
Air	3.0†	3.0†	2.9	3.0	– 3.3	– 5.3
Public Utilities	12.0†	11.9†	12.1	12.0	– .6	+ 1.7
Total Trade	85.0†	85.8†	86.5	85.6	+ .5	+ 2.1
Wholesale Trade	13.9†	13.9†	14.0	13.9	– .5	– 1.4
Retail Trade	71.1†	71.9†	72.5	71.8	+ .7	+ 2.9
Finance, Ins., Real Estate	18.2†	18.1†	18.1	18.1	– .9	– 1.6
Service Industries	175.7†	177.4†	178.8	177.3	+ 1.8	+ 2.4
Hotels, Amusement and Recreation Combined	113.0†	114.4†	115.5	114.3	+ 1.7	+ .0
Medical and Health	15.3†	15.4†	15.5	15.4	+ 2.7	+ 9.5
Total Government	58.4†	58.8†	57.7	58.3	+ .8	+ 1.1
Federal	9.3†	9.4†	9.6	9.4	+ 2.5	+ .7
State and Local	49.1†	49.4†	48.1	48.9	+ .5	+ 1.2
Education	21.1†	21.2†	19.3	20.5	– .3	+ 2.2
Average Weekly Earnings in Selected Industries						
Mining	463.79†	512.31†	447.63	474.58	+ 1.9	+ 6.8
Construction	572.55†	581.75†	600.24	584.85	+ 7.5	+ 2.8
Manufacturing	322.81†	322.45†	318.45	321.24	– 1.2	+ .1
Public Utilities	417.25†	414.46†	434.43	422.05	+ 2.7	+ 8.2
Trade	254.69†	253.84†	263.03	257.19	+ 2.0	+ 7.0
Average Weekly Hours in Selected Industries						
Mining	40.4†	43.9†	40.4	41.6	+ .2	– 1.0
Construction	34.7†	35.8†	36.4	35.6	+ 7.8	– 3.2
Manufacturing	36.8†	36.8†	36.9	36.7	– 1.7	– 5.7
Public Utilities	39.7†	39.1†	40.3	39.7	+ .8	– .8
Trade	33.6†	33.8†	34.7	34.0	+ 1.8	– 1.3
Average Hourly Earnings in Selected Industries						
Mining	11.48†	11.67†	11.08	11.41	+ 1.7	+ 7.7
Construction	16.50†	16.25†	16.49	16.41	– .2	+ 6.1
Manufacturing	8.82†	8.81†	8.63	8.75	+ .5	+ 6.1
Public Utilities	10.51†	10.60†	10.78	10.63	+ 2.0	+ 9.1
Trade	7.58†	7.51†	7.58	7.56	+ .2	+ 8.3
Construction Activity						
Residential ($000's)	47,200	68,700	50,100	166,000	+ 21.3	– 1.1
Nonresidential ($000's)	24,800	12,000	33,200	70,000	– 31.0	– 22.3
Nonbuilding ($000's)	28,900	13,300	21,300	63,500	+ 31.2	+ 165.7
Total ($000's)	100,900	94,000	104,600	299,500	+ 4.4	+ 6.2
# of New Dwelling Units	632	656	1,011	2,299	– 10.9	– 27.5
Banking Activities ($000,000's)						
Loans	2,114	2,086	2,163	2,121	+ 1.5	+ 8.0
Investments	659	660	678	665	– .6	+ 1.3

Statewide Statistical Data (Continued)

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982	PERCENT CHANGE 2nd Quarter-1981 2nd Quarter-1982
Total Deposits	3,031	2,975	3,046	3,017	+ 5.4	+ 11.1
Demand Deposits	930	894	967	930	+ .4	– 8.9
Time & Savings Deposits	2,096	2,077	2,079	2,084	+ 7.9	+ 23.4
Tax Collections ($)						
Liquor	1,087,952	1,012,516	1,181,201	3,281,669	+ 30.0	+ .7
Cigarette	1,116,556	1,053,624	1,028,831	3,199,011	– 1.7	– 6.3
Fuel	3,033,218	3,127,424	3,332,165	9,492,807	+ 6.1	+ 93.7
Taxable Sales ($000's)	–	–	–	1,664,341	+ 8.0	– 4.5
Gaming Revenues ($000's)	–	–	–	665,429	+ 4.1	+ 3.0
Highway Traffic Flow						
17 Selected Stations (Avg. Daily)	95,100	109,026	122,885	109,003	+ 28.9	– 2.4

† Revised.

Las Vegas Standard Metropolitan Statistical Area

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982	2nd Quarter-1981 2nd Quarter-1982
Total Labor Force (000's)	271.1†	271.6†	272.6	271.8	+ 1.2	+ 5.6
Total Employment (000's)	245.3†	244.9†	243.8	244.7	– .1	+ 3.5
Unemployment (000's)	25.8†	26.5†	28.8	27.0	+ 14.8	+ 29.4
Unemployment Rate	9.4†	9.8†	10.6	9.9	+ 13.3	+ 23.1
Unemployment Rate (Seasonally Adjusted)	9.9†	10.1†	10.0	10.0	+ 14.1	+ 23.0
Agricultural Employment (000's)	.8†	.8†	1.0	.9	+ 62.5	+ 0.0
Establishment Based Industrial Employment						
Total All Industries (000's)	230.3†	230.5†	230.3	230.4	– .1	+ .9
Mining	.6†	.6†	.6	.6	+ 0.0	+ 5.9
Contract Construction	13.8†	13.6†	13.7	13.7	– .7	– 8.7
Manufacturing	7.5†	7.3†	7.3	7.4	– 2.2	– 1.3
Transportation & Utilities						
Transportation	7.9†	8.0†	7.9	7.9	– .8	– .8
Railroads	.7†	.7†	.7	.7	+ 0.0	+ 0.0
Air	2.4†	2.4†	2.4	2.4	– 4.0	– 8.9
Public Utilities	6.0†	6.0†	6.1	6.0	– .5	+ 4.0
Total Trade	48.5†	48.6†	48.8	48.6	– .4	+ .8
Wholesale Trade	6.3†	6.3†	6.3	6.3	+ .5	– 3.6
Retail Trade	42.2†	42.3†	42.5	42.3	– .5	+ 1.4
Finance, Ins., Real Estate	10.5†	10.4†	10.4	10.4	– .3	– .6
Service Industries	108.0†	108.4†	108.3	108.2	+ .2	+ 2.2
Hotels, Gaming & Recreation	69.0†	69.1†	68.7	68.9	– .9	– .5
Total Government	27.5†	27.6†	27.2	27.4	+ .7	+ 2.5
Federal	4.8†	4.8†	4.9	4.8	+ .7	+ 2.1
State and Local	22.7†	22.8†	22.3	22.6	+ .7	+ 2.6
Education	10.6†	10.5†	9.8	10.3	– 1.0	+ 2.3
Construction Activity						
Las Vegas						
Residential ($000's)	4,357	2,889	2,986	10,232	– 36.4	– 31.9
Nonresidential ($000's)	5,688	7,525	5,006	18,219	– 55.0	– 3.7
Total Value ($000's)	10,045	10,414	7,992	26,451	– 49.7	– 16.2
# of New Family Units	122	71	65	258	– 43.8	– 27.7
North Las Vegas						
Residential ($000's)	786	910	1,915	3,611	+ 174.8	+ 4.4
Nonresidential ($000's)	249	343	8,151	8,743	+ 437.0	+ 258.0
Total Value ($000's)	1,035	1,253	10,066	12,354	+ 319.8	+ 109.3
# of Permits	66	66	77	209	+ 34.8	– 30.6
Energy Consumption						
Sales (000's KWH)	366,468	451,914	515,139	1,333,521	– .1	– 7.5
# of Customers	201,243	201,525	202,209	201,659	+ .7	+ 3.9
Taxable Sales ($000's)	–	–	–	917,253	+ 6.6	– 1.0
Gaming Revenues ($000's)	–	–	–	442,656	– 1.8	+ 4.5
Air Transportation-McCarran						
Passengers (Arr. & Depart.)	825,439	789,510	749,173	2,364,122	– 3.1	+ .1
Cargo Enplaned (lbs.)	764,783	885,545	827,852	2,458,180	+ .1	– 38.0
Cargo Deplaned (lbs.)	1,663,159	1,600,586	1,400,341	4,664,086	– 11.3	– 5.5
Highway Traffic Flow						
4 Selected Stations (Avg. Daily)	30,031	30,814	33,326	31,390	+ 23.2	+ 3.1
Room Tax ($)						
Clark County	NA	NA	NA	NA	NA NA	NA NA
Las Vegas City	NA	NA	NA	NA	NA NA	NA NA
SMSA Total	NA	NA	NA	NA	NA NA	NA NA

†Revised.

Reno Standard Metropolitan Statistical Area

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982	PERCENT CHANGE 2nd Quarter-1981 2nd Quarter-1982
Total Labor Force (000's)	133.1†	133.8†	134.3	133.7	+ 1.3	+ 5.1
Total Employment (000's)	124.0†	124.8†	122.9	123.9	+ .9	+ 2.0
Unemployment (000's)	9.1†	9.0†	9.3	9.1	+ 0.0	+ 42.0
Unemployment Rate	6.8†	6.7†	6.9	6.8	– 1.9	+ 34.2
Unemployment Rate (Seasonally Adjusted)	7.0†	7.2†	7.5	7.2	+ 24.7	+ 34.0
Agricultural Employment (000's)	.6†	.6†	.7	.6	+ 46.2	+ 0.0
Establishment Based Industrial Employment						
Total All Industries (000's)	115.3†	116.3†	116.8	116.1	+ 1.4	+ .5
Mining	.7†	.8†	.8	.8	+ 9.5	– 17.9
Contract Construction	5.4†	5.7†	5.7	5.6	+ 5.0	– 15.2
Manufacturing	8.2†	8.2†	8.2	8.2	– 2.0	– 3.1
Transportation & Utilities						
Transportation	3.8†	3.8†	3.9	3.8	– .9	+ 5.5
Railroads	.5†	.5†	.5	.5	+ 0.0	+ 0.0
Public Utilities	4.3†	4.3†	4.3	4.3	– .8	– 4.4
Total Trade	26.0†	26.2†	26.3	26.2	+ .5	+ 4.0
Wholesale Trade	6.5†	6.5†	6.5	6.5	– 1.0	+ 1.0
Retail Trade	19.5†	19.7†	19.8	19.7	+ 1.0	+ 5.0
Finance, Ins., Real Estate	6.0†	5.9†	5.9	5.9	– 1.7	– 4.3
Service Industries	44.4†	44.8†	45.6	44.9	+ 3.0	+ 2.4
Hotels, Gaming & Recreation	28.4†	28.8†	29.6	28.9	+ 3.8	+ 1.4
Total Government	16.5†	16.6†	16.1	16.4	+ .8	+ 1.4
Federal	2.5†	2.5†	2.5	2.5	+ 1.4	+ 0.0
State and Local	14.0†	14.1†	13.6	13.9	+ .7	+ 1.7
Education	6.7†	6.8†	6.0	6.5	+ 0.0	+ 2.6
Construction Activity						
Reno						
Residential ($000's)	1,466	803	1,714	3,983	– 43.0	– 75.8
Nonresidential ($000's)	3,131	2,505	1,209	6,845	– 35.5	– 46.9
Total Value ($000's)	4,597	3,308	2,923	10,828	– 38.5	– 63.1
# of New Family Units	21	5	25	51	– 74.4	– 91.9
Sparks						
Residential ($000's)	1,099	2,082	3,305	6,486	+ 214.1	+ 3,175.8
Nonresidential ($000's)	1,225	1,411	541	3,177	– 5.8	– 60.7
Total Value ($000's)	2,324	3,493	3,846	9,663	+ 77.7	+ 16.5
# of New Family Units	22	120	93	235	+ 487.5	NA
Washoe County (Unincorporated)						
Residential ($000's)	2,504	3,991	4,145	10,640	+ 99.7	– 1.6
Nonresidential ($000's)	1,691	555	493	2,739	+ 100.7	– 42.3
Total Value ($000's)	4,195	4,546	4,638	13,379	+ 99.9	– 14.1
# of New Family Units	21	30	38	89	+ 78.0	– 18.3
Quarterly Taxable Sales ($000's)	–	–	–	406,413	+ 10.2	– 7.6
Gaming Revenues ($000's)	–	–	–	137,235	+ 18.7	+ 4.1
Air Transportation-Reno						
Passengers (Arr. & Depart.)	218,304	203,249	216,042	637,595	– 5.1	+ 21.9
Cargo Enplaned (lbs.)	587,750	405,154	598,012	1,590,916	+ 14.8	+ 5.9
Cargo Deplaned (lbs.)	543,876	454,162	537,838	1,535,876	– 4.0	– 9.6
Highway Traffic Flow						
7 Selected Stations (Avg. Daily)	53,609	64,357	72,112	63,359	+ 28.7	NA
Room Tax ($)						
Washoe County	NA	NA	NA	NA	NA	NA
Reno	NA	NA	NA	NA	NA	NA
Sparks	NA	NA	NA	NA	NA	NA
SMSA Total	NA	NA	NA	NA	NA	NA

† Revised.

Nevada Statistical Data by County

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982	PERCENT CHANGE 2nd Quarter-1981 2nd Quarter-1982
CARSON CITY						
Total Labor Force	21,210†	21,270†	21,510	21,330	+ .9	+ 8.4
Total Employment	19,210†	19,430†	19,590	19,410	+ 2.6	+ 6.9
Unemployment	2,000†	1,840†	1,920	1,920	– 13.3	+ 26.0
Unemployment Rate	9.4†	8.6†	8.9	9.0	– 14.3	+ 15.5
Construction Activity						
Residential Value ($000's)	364	1,145	1,670	3,179	+ 213.2	– 29.9
Nonresidential Value ($000's)	503	600	2,491	3,594	+ 620.2	+ 234.9
Total Value ($000's)	867	1,745	4,161	6,773	+ 347.2	+ 20.8
# of New Family Units	4	6	10	20	+ 150.0	– 72.6
Taxable Sales ($000's)	–	–	–	47,654	+ 12.2	– 7.7
Gaming Revenues ($000's)	–	–	–	8,715	+ 30.7	+ 2.5
CHURCHILL						
Total Labor Force	6,600†	6,730†	6,890	6,740	+ 5.7	+ 8.9
Total Employment	5,890†	5,970†	6,090	5,983	+ 5.8	+ 4.1
Unemployment	710†	760†	800	756	+ 5.1	+ 70.7
Unemployment Rate	10.8†	11.2†	11.6	11.2	– .3	+ 57.7
Construction Activity						
Residential Value ($000's)	127	260	58	445	+ 12.9	+ 39.1
Nonresidential Value ($000's)	213	450	219	882	+ 97.3	+ 174.8
Total Value ($000's)	340	710	277	1,327	+ 57.8	+ 107.0
# of New Family Units	1	3	0	4	+ 0.0	– 33.3
Taxable Sales ($000's)	–	–	–	13,086	+ 8.7	– 15.4
Gaming Revenues ($000's)	–	–	–	1,022	+ 26.5	– 1.5
DOUGLAS						
Total Labor Force	8,930†	9,200†	9,440	9,190	+ 5.2	+ 5.3
Total Employment	8,200†	8,510†	8,800	8,503	+ 6.7	+ 5.7
Unemployment	730†	690†	640	686	– 10.4	+ .5
Unemployment Rate	8.2†	7.4†	6.7	7.4	– 15.2	– 5.1
Taxable Sales ($000's)	–	–	–	38,117	+ 4.1	– 3.8
Gaming Revenues ($000's)	–	–	–	59,091	+ 18.2	– 5.7
ELKO						
Total Labor Force	12,180†	12,380†	12,760	12,440	+ 4.9	+ 2.8
Total Employment	11,320†	11,620†	11,910	11,616	+ 6.4	+ .3
Unemployment	860†	760†	850	823	– 12.1	+ 57.3
Unemployment Rate	7.1†	6.1†	6.8	6.6	– 16.5	+ 53.5
Construction Activity						
Elko City						
Residential ($000's)	591	259	217	1,067	+ 444.4	+ 80.8
Nonresidential ($000's)	311	107	61	479	+ 112.9	– 54.7
Total Value ($000's)	902	366	278	1,546	+ 267.2	– 11.5
# of New Dwelling Units	7	2	6	15	+ 200.0	+ 36.4
Taxable Sales ($000's)	–	–	–	35,792	+ 27.5	– 14.9
Gaming Revenues ($000's)	–	–	–	13,428	+ 28.2	+ 12.5
ESMERALDA						
Total Labor Force	300†	310†	310	306	+ 2.2	– 5.2
Total Employment	260†	270†	260	263	+ 2.6	– 12.2
Unemployment	40†	40†	50	43	+ 0.0	+ 85.7
Unemployment Rate	12.7†	13.7†	14.4	13.6	– .2	+ 105.0
Taxable Sales ($000's)	–	–	–	699	– 11.7	– 11.4
EUREKA						
Total Labor Force	820†	820†	890	843	+ 18.2	+ 11.0
Total Employment	730†	740†	790	753	+ 14.7	+ 6.1
Unemployment	90†	80†	100	90	+ 58.8	+ 80.0
Unemployment Rate	11.2†	9.5†	11.4	10.7	+ 45.2	+ 72.6
Taxable Sales ($000's)	–	–	–	947	– 7.3	– 59.5

Nevada Statistical Data by County (Continued)

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982	PERCENT CHANGE 2nd Quarter-1981 2nd Quarter-1982
HUMBOLDT						
Total Labor Force	6,140†	6,270†	6,460	6,290	+ 6.9	+ 4.4
Total Employment	5,600†	5,750†	5,900	5,750	+ 6.8	+ .8
Unemployment	540†	520†	560	540	+ 7.3	+ 67.0
Unemployment Rate	8.9†	8.3†	8.7	8.6	+ 1.2	+ 61.9
Taxable Sales ($000's)	–	–	–	16,606	+ 31.8	– 2.3
Gaming Revenues ($000's)	–	–	–	2,040	+ 43.2	– 11.7
LANDER						
Total Labor Force	2,710†	2,770†	2,890	2,790	+ 7.6	+ 2.4
Total Employment	2,490†	2,550†	2,620	2,553	+ 5.9	– 1.9
Unemployment	220†	220†	270	236	+ 29.1	+ 97.2
Unemployment Rate	7.9†	7.8†	9.4	8.4	+ 16.7	+ 91.6
Taxable Sales ($000's)	–	–	–	6,985	+ 15.0	– 14.1
Gaming Revenues ($000's)	–	–	–	184	– 4.1	– 37.2
LINCOLN						
Total Labor Force	2,690†	2,720†	2,790	2,733	+ 4.7	+ 4.5
Total Employment	2,470†	2,500†	2,520	2,496	+ 4.6	– .8
Unemployment	220†	220†	270	236	+ 6.0	+ 136.7
Unemployment Rate	8.2†	8.1†	9.6	8.6	+ 1.2	+ 129.2
Taxable Sales ($000's)	–	–	–	1,435	– 58.8	– 37.1
LYON						
Total Labor Force	4,760†	4,860†	5,010	4,876	+ 6.6	+ 1.8
Total Employment	4,170†	4,260†	4,380	4,270	+ 7.2	– 2.4
Unemployment	590†	600†	630	606	+ 2.8	+ 45.6
Unemployment Rate	12.4†	12.4†	12.5	12.4	– 3.6	+ 43.5
Construction Activity						
Residential ($000's)	NA	NA	NA	NA	NA	NA
Nonresidential ($000's)	NA	NA	NA	NA	NA	NA
Total Value ($000's)	NA	NA	NA	NA	NA	NA
# of New Family Units	NA	NA	NA	NA	NA	NA
Taxable Sales ($000's)	–	–	–	11,352	+ 15.0	– 8.3
Gaming Revenues ($000's)	–	–	–	329	+ .3	+ 17.9
MINERAL						
Total Labor Force	3,000†	2,990†	3,030	3,006	+ 1.5	– 10.4
Total Employment	2,800†	2,780†	2,800	2,793	+ 1.3	– 13.8
Unemployment	200†	210†	230	213	+ 3.2	+ 82.9
Unemployment Rate	6.7†	6.9†	7.7	7.1	+ 1.9	+ 104.8
Taxable Sales ($000's)	–	–	–	5,646	+ 61.6	+ 13.5
Gaming Revenues	–	–	–	1,263	+ 18.0	– 3.8
NYE						
Total Labor Force	3,200†	3,210†	3,320	3,243	+ 4.8	+ 5.4
Total Employment	3,000†	3,050†	3,110	3,053	+ 4.8	+ 3.2
Unemployment	200†	160†	210	190	+ 5.6	+ 62.9
Unemployment Rate	6.1†	4.9†	6.2	5.7	– 1.1	+ 52.2
Taxable Sales ($000's)	–	–	–	21,296	+ 40.1	+ 26.1
Gaming Revenues ($000's)	–	–	–	1,237	+ 13.5	+ 12.5
PERSHING						
Total Labor Force	1,880†	1,940†	2,040	1,953	+ 9.7	– 5.2
Total Employment	1,780†	1,840†	1,900	1,840	+ 9.7	– 6.0
Unemployment	100†	100†	140	113	+ 9.7	+ 9.7
Unemployment Rate	5.5†	5.4†	6.7	5.9	+ 3.5	+ 22.2
Taxable Sales ($000's)	–	–	–	3,552	+ 22.1	– 2.7
Gaming Revenues ($000's)	–	–	–	201	+ 28.8	+ 17.5

Nevada Statistical Data by County (Continued)

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982	PERCENT CHANGE 2nd Quarter-1981 2nd Quarter-1982
STOREY						
Total Labor Force	1,380†	1,420†	1,450	1,416	+ 7.9	+ 1.7
Total Employment	1,250†	1,310†	1,340	1,300	+ 7.7	– .8
Unemployment	130†	110†	110	116	+ 9.4	+ 40.0
Unemployment Rate	9.6†	8.0†	7.4	8.3	+ 3.3	+ 39.7
Taxable Sales ($000's)	–	–	–	1,995	+ 48.1	– 56.7
Gaming Revenues ($000's)	–	–	–	532	+ 115.4	– 12.4
WHITE PINE						
Total Labor Force	4,540†	4,720†	4,700	4,653	+ 7.6	+ 4.3
Total Employment	4,000†	4,170†	4,200	4,123	+ 6.8	– 1.4
Unemployment	540†	550†	500	530	+ 14.4	+ 89.3
Unemployment Rate	12.0†	11.6†	10.7	11.4	+ 6.9	+ 81.5
Construction Activity						
Total Value ($000's)	NA	NA	NA	NA	NA	NA
# of Permits	NA	NA	NA	NA	NA	NA
Taxable Sales ($000's)	–	–	–	9,556	+ 3.0	– 24.0
Gaming Revenues ($000's)	–	–	–	487	+ 7.5	– 19.4

Revised.

Selected U.S. and Regional Economic Indicators

Consumer Price Index & Indexes of Selected Categories
All Urban Consumers
(1967 = 100%)

	April 1982	May 1982	June 1982	2nd Quarter 1982	PERCENT CHANGE 1st Quarter-1982 2nd Quarter-1982		PERCENT CHANGE 2nd Quarter-1981 2nd Quarter-1982	
All Items	284.3	287.1	290.6	287.3	+	1.5	+	6.8
Food	283.9	285.5	287.8	295.7	+	1.2	+	4.7
Housing	309.4	313.8	317.5	313.6	+	2.2	–	11.7
Apparel and Upkeep	191.9	191.5	190.8	191.4	+	1.4	+	2.8
Transportation	282.9	285.6	292.8	287.1	–	.2	+	3.4
Medical Care	321.7	323.8	326.4	324.0	+	2.5	+	12.0

Producer Price Indexes for Selected Commodity Groupings
(1967 = 100%)

All Commodities	297.9	298.6	299.4	298.6	+	.1	+	1.7
Fuel and Power	671.2	661.9	677.4	670.2	–	4.0	–	4.9
Machinery and Equipment	277.3	278.1	278.4	277.9	+	1.2	+	6.7
Metals and Metal Products	303.8	303.4	300.1	302.4	–	.7	+	1.2
Nonmetallic Mineral Products	320.0	319.1	318.7	319.3	+	.5	+	2.5
Textile Products & Apparel	204.7	205.1	204.5	204.8	+	.2	+	3.4

U.S. Labor Force

Civilian Labor Force (000's)	108,814	109,914	111,569	110,099	+	1.6	+	3.3
Total Employment (000's)	98,858	99,957	100,683	99,832	+	1.8	+	1.0
Unemployment (000's)	9,957	9,957	10,886	10,266	–	.2	+	32.6
Unemployment Rate	9.2	9.1	9.8	9.4	–	1.4	+	28.8
Unemployment Rate (Seasonally Adjusted)	9.4	9.5	9.5	9.5	+	8.0	+	28.4

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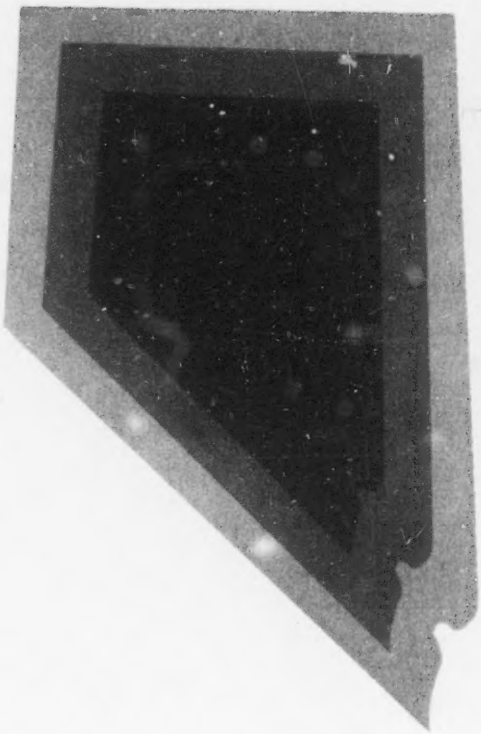

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In This Issue

Winter 1982-83 **Volume VI, No. 4**

The Nevada Economy:
Past, Present and Future 2
Thomas F. Cargill

Determining the Attractiveness of
Firms for Industrial Diversification:
Seeking Consensus from Internal and External Sources 10
Gano S. Evans, Sam E. White,
Georgia K. White and Robert Plant

Reaganomics:
A Mid-Term Assessment 19
Bruce W. Kimzey

Natural Gas in Transition 25
Albin Dahl

Nevada Economic Indicators
Statewide Statistical Data 35
Las Vegas SMSA Data 37
Reno SMSA Data 38
Nevada Statistical Data by County 39
Selected U.S. and Regional Economic Indicators 42

Announcement: The Gambling Papers:
Proceedings of the Fifth National Conference on
Gambling and Risk Taking 43

Population Estimates for Nevada
By Counties and Independent Cities:
1980, 1981, 1982 44

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The Nevada Economy: Past, Present and Future

*By Thomas F. Cargill**

After considering the economic characteristics of the state, the author points out that the sensitivity of the Nevada economy to national economic conditions increases the need for diversification of the state's economy. But it is observed that the goal of diversification has come into serious conflict with the fiscal condition of the state. Tax restructuring might have an adverse impact on attracting nongaming industries and further reductions in social services and education would also have an adverse impact.

The author believes that expansion of the Nevada economy will reflect the forecasted anemic character of the national expansion in 1983 and that the fiscal problems of the state will continue as long as a significant proportion of state and local revenues is tied to the sales tax. As for the long run, the author concludes that there is potential for substantial economic growth but that significant problems must be addressed before that potential can be realized.

I. Introduction

There are three unique characteristics of the Nevada economy that make it an interesting case study for the regional economist. First, Nevada's economy is less diversified than most other state and regional economies of the United States. Gaming and other tourist related services provide the primary economic foundation of the state and most local economies within the state. While basic activities include agriculture, mining, and federal government services, gaming and related tourist services dominate the base activities and provide the major export of economic activity. Estimates indicate that gaming alone directly and indirectly accounts for over sixty percent of total employment, and that revenues obtained from gaming represent almost half of the general revenues of the state. Second, the geography and the uneven distribution of economic activity of the state (Figure 1) present some interesting issues. The federal government owns 87 percent of the land and Nevada has played a significant role in the "sagebrush" rebellion and the location of the controversial MX missile system.[1] Despite the large size of the state, population and economic activity are concentrated in three well-defined regions: Las Vegas, Reno-Sparks, and South Lake Tahoe, which are located in Clark County, Washoe County and Douglas County/Carson City,[2] respectively. Clark County is by far the most important economic region of the state. In 1980, the three counties accounted for 55.9, 28.0 and 6.1 percent of the state's total employment (individuals employed); 70.5, 18.1, 8.9 percent of the gross gaming revenues; and 57.9, 24.2 and 6.4 percent of the total population.[3] Gross

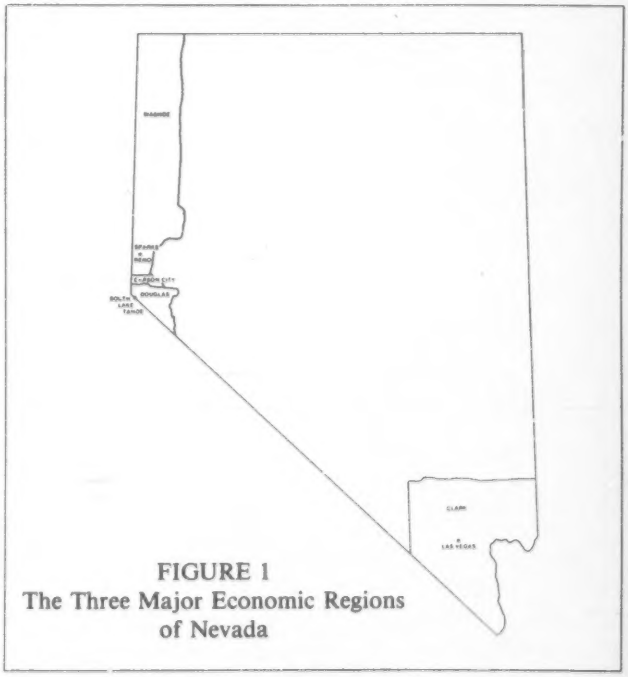

FIGURE 1
The Three Major Economic Regions of Nevada

**Thomas F. Cargill is Professor of Economics, College of Business Administration, University of Nevada, Reno.* *He would like to thank Glen Atkinson, Sam Males, Albin Dahl, and Margaret Peters for help in the preparation of this paper. They are not responsible for any remaining errors.*

This paper will also be published in a special issue of the Southwestern Review of Management and Economics devoted to the western economics of the U.S. The *Southwestern Review* is published by the Bureau of Business and Economic Research, University of New Mexico, and appreciation is extended to that Bureau for allowing this paper to appear in the *Nevada Review of Business and Economics.*

The article will be the basis for a presentation by Dr. Cargill at an upcoming Mountain States Region, 1983, Economic Outlook Conference in Albuquerque, New Mexico, March 15, 1983, cosponsored by Wharton Econometric Forecasting Associates and the University of New Mexico. For further details concerning the *Southwestern Review* issue or the upcoming conference, contact the University of New Mexico, Bureau of Business and Economic Research, Albuquerque, New Mexico 97131.

gaming revenues are a nominal measure of sums received as winnings less the sums paid out as losses and are considered a major indicator of economic activity within the state.[4] Thus, the concentration of population and economic activity within a few regions of the state presents an economic environment that is both urban and rural at the same time. Many of the problems faced by the three major economic regions are urban and similar to problems faced by large cities throughout the U.S. while at the same time, the state needs to respond to the needs of a sparsely populated rural sector. Third, Nevada and the three major regions of the state have exhibited an extremely rapid growth record during the past two decades, especially in the 1970s. At one time there was considerable discussion that gaming, and hence the Nevada economy, were recession proof and that uninterrupted economic growth could be expected for the next several decades. By the end of the 1970s, however, expectations finally became consistent with reality. The adverse impacts of uncontrolled and non-diversified economic growth became apparent to most observers. At the same time, the Nevada economy was becoming increasingly sensitive to national swings in economic activity. These and other outcomes of the rapid growth in the 1970s have raised serious issues for the Nevada economy in the coming decades.

The objective of this paper is to provide the reader with an overview of the Nevada economy in terms of past, present and future economic development. This should present some interesting issues for the regional economist, given the unique characteristics of the Nevada economy that differentiate it from other regional economies in the U.S. This objective is carried out in the following sections. Section II presents a general economic profile of the state over the period from 1970 through 1981. The relationship between the Nevada economy and the national economy is discussed in Section III. Section IV assesses the economic path the state is most likely to take in the 1980s. A number of significant economic issues facing the Nevada economy are discussed in Section V, and a brief concluding section completes the paper.

II. Profile of the Nevada Economy

A profile of the Nevada economy can be readily obtained by considering five economic characteristics of the state: (1) the structure of the state economy as reflected by the composition of industrial employment in various categories of activity; (2) the geographical distribution of economic activity within the state; (3) the fiscal program of state government; (4) the past economic growth of the state economy; and (5) the relative size and growth of the Nevada economy compared to the national economy.

Structure of the State Economy Table 1 presents information on nonfarm wage and salary employment by industry (number of jobs) compiled by the Bureau of Economic Analysis, U.S. Department of Commerce for 1970, 1975, 1980, and 1981. Industrial employment composition provides an accurate reflection of the structure of the Nevada economy since agricultural employment is a relatively small

TABLE 1

Nevada and U.S. Nonfarm Wage and Salary Employment by Industry (number of Jobs), 1970, 1975, 1980, 1981

	NEVADA		U.S.	
Category	Level	Percent of Total	Level[a]	Percent of Total
Mining				
1970	4,052	1.8%	627	0.8%
1975	4,359	1.6	748	0.9
1980	6,192	1.5	1,034	1.0
1981	7,765	1.8	1,145	1.2
Construction				
1970	12,522	5.6%	3,563	4.6%
1975	12,601	4.5	3,573	4.3
1980	26,497	6.3	4,326	4.6
1981	25,735	5.9	4,170	4.3
Manufacturing				
1970	8,444	3.7%	19,410	25.1%
1975	12,185	4.3	18,320	22.2
1980	19,164	4.6	20,338	21.4
1981	20,114	4.7	20,210	21.1
Transportation & Public Utilities				
1970	13,630	6.0%	4,510	5.8%
1975	16,924	6.0	4,550	5.5
1980	24,037	5.7	5,130	5.4
1981	24,807	5.7	5,158	5.4
Wholesale Trade				
1970	6,425	2.9%	3,806	4.9%
1975	8,802	3.1	4,427	5.4
1980	13,197	3.1	5,282	5.6
1981	14,057	3.3	5,396	5.6
Retail Trade				
1970	33,112	14.7%	11,469	14.9%
1975	42,729	15.2	12,715	15.4
1980	67,174	16.0	15,061	15.8
1981	69,752	16.1	15,203	15.8
Finance, Insurance and Real Estate				
1970	8,576	3.8%	3,739	4.8%
1975	11,150	4.0	4,264	5.2
1980	19,113	4.5	5,276	5.6
1981	19,516	4.5	5,430	5.7
Services				
1970	87,323	38.7%	13,619	17.6%
1975	111,810	39.7	15,882	19.2
1980	172,803	41.1	19,382	20.4
1981	177,400	41.0	20,055	20.9
Government & Gov't Enterprises				
1970	51,148	22.7%	16,200	21.0%
1975	60,081	21.4	17,704	21.5
1980	71,305	16.9	18,761	19.7
1981	72,460	16.7	18,643	19.4
Agriculture, Service, Forestry, Fisheries and Other				
1970	523	0.2%	301	0.4%
1975	724	0.3	362	0.4
1980	1,356	0.3	548	0.6
1981	1,365	0.3	583	0.6
TOTAL				
1970	225,755	—	77,244	—
1975	281,355	—	82,545	—
1980	420,838	—	95,138	—
1981	432,971	—	95,993	—

[a]In Thousands

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce.

part of the economy. In the first quarter of 1982, agricultural employment (number of individuals) represented only 1.8 percent of total state employment. The employment figures in Table 1 reveal several significant implications regarding the Nevada economy.

First, the service sector which includes hotel, gaming, and recreational activities is the largest sector of the Nevada economy and has been so throughout the 1970s. The service sector in Nevada has slightly increased its relative importance over the decade of the 1970s and is almost twice as important in terms of jobs compared to the national economy. In 1981, Nevada service employment represented 41.0 percent of total employment compared to 20.9 percent for the nation. Hotel-gaming-recreation employment represents over 60 percent of total service employment for the state as a whole.

Second, construction employment has been relatively more important in the Nevada economy compared to the national economy and reflects the significant growth experienced by Nevada during the 1970s.

Third, manufacturing activity in Nevada is significantly less important compared to the national economy. In 1981, manufacturing accounted for 5.9 percent of total employment whereas manufacturing accounted for 21.1 percent of total employment at the national level. The small role played by manufacturing in the Nevada economy is also reflected by the relatively smaller role of the wholesale sector compared to the national economy.

Fourth, the percentage composition of total employment over the period from 1970 through 1981 has not changed significantly and thus indicates that the structure of the Nevada economy has remained fairly constant during a period of extremely rapid growth.

Geographical Distribution of Economic Activity The geographical distribution of economic activity has already been mentioned; however, some meaningful information can be obtained by examining total and service employment for 1970, 1975, and 1979 in each of the three major economic regions (Table 2).

Clark County is the most important region in the state with over 75 percent of employment categorized as service related. The hotel-gaming-recreational component of service employment for Clark has remained relatively constant over the period at about 30 percent of total employment. The next largest economic region is Washoe County. The service component is less important for Washoe compared to Clark; however, it still accounts for over 50 percent of total employment and has significantly increased during the 1970s. The hotel-gaming-recreational component of total employment has also grown in the late 1970s and represented 26.1 percent of total employment in 1979 compared to 22.5 percent in 1970. The smallest economic region is the Douglas-Carson City area and the service sector accounts for almost 50 percent of total employment. Hotel-gaming-recreational employment figures were not available for this region; however, they would be comparable to those of Washoe County.

Fiscal Program of the Nevada Economy The fiscal pro-

TABLE 2

Total Industrial and Service Employment For the Three Major Economic Regions of the Nevada Economy 1970, 1975 and 1979

	CLARK		WASHOE		DOUGLAS/ CARSON CITY	
	Level[a]	Percent of Total	Level[a]	Percent of Total	Level	Percent of Total
Service						
1970	837	75.3%	322	57.0%	6,237	48.7%
1975	1,153	80.3	420	56.9	9,936	49.2
1979	1,625	77.7	731	64.2	13,469	44.7
Total						
1970	1,111	—	565	—	12,811	—
1975	1,435	—	738	—	20,192	—
1979	2,091	—	1,138	—	30,135	—

[a]In Thousands

Source: Bureau of Business and Economic Research Data Base, University of Nevada, Reno.

TABLE 3

State Fiscal Program Reflected by the 1979-80 General Fund Budget

	Amount (000's)	Percent
Revenues		
Property Taxes	$ 191	0.1%
Sales and Use Taxes	122,009	37.8
Gaming Taxes	147,913	45.9
Liquor Taxes	8,787	2.7
Other Taxes	11,961	3.7
Non-Tax Revenues	31,495	9.8
TOTAL	$322,356	100.00%
Expenditures		
General Government	$ 21,123	7.1%
Education	172,773	57.7
Human Resources	62,628	20.9
Public Safety	18,589	6.2
Regulation	9,709	3.2
Conservation and Agricultural	7,886	2.6
Highway/Motor Vehicles	384	0.1
Other	6,137	2.1
TOTAL	$299,229	100.0%

Source: Legislative Fiscal Report, State of Nevada, 1979-80.

gram of state government reflects the politically conservative nature of Nevada. The constitution mandates a balanced budget and despite the rapid growth of the Nevada economy during the 1970s, there has been significant resistance to expand revenue sources and real expenditures as has been the case in other areas of the country. The budget is normally in a surplus position. Table 3 presents a summary of the 1979-80 general fund budget.

State government in 1979-80 obtained the majority of revenue from sales and use taxes and gaming taxes. A portion of these revenues are returned to the counties in which they were generated to help finance local government expenditures. Local governments obtain the majority of their revenues from property taxes which are not channeled through the state budget. The importance of the gaming sector is revealed by Table 3. Gaming revenues represented 45.9 percent of the general revenues of the state.

General fund expenditures in 1979-80 were primarily devoted to education and human resources which represent a variety of social service programs. While education constitutes the major part of the expenditure program, Nevada has been criticized in the past for the low expenditure level on education. In fact, general fund expenditures significantly understate total state spending since a number of functional areas such as highway expenditures are financed through trust accounts or other off-budget revenue sources. Approximately 50 percent of total state spending is outside of the general fund budget.

The 1981 Legislature (which meets every two years) significantly altered the tax structure for Nevada from that implied by Table 3. In the wake of California's Proposition 13, Nevada lowered property taxes by 50 percent and increased the sales tax from 3.5 to 5.75 percent. A portion of the sales tax revenue collected by the state was to be channeled back to the local governments to make up for lost property tax revenues. This tax shift program was controversial and in the opinion of many observers has placed state and local budgets in a serious position. Taxable sales have not grown as forecasted and state revenues have fallen far short of planned expenditures. Expenditure budgets have been cut significantly and further cuts are planned. The state Legislature in 1983 may leave the tax structure unchanged, alter the tax structure, or pursue some type of combined tax structure change and expenditure adjustment. At this time, the outcome is uncertain. To complicate the matter further, a district court in Las Vegas has ruled the tax shift unconstitutional because it gave preferential treatment to residential property in determining assessed value. The district court decision will not be implemented until after the Legislature meets and has an opportunity to rectify the unequal treatment. There is still the possibility that the issue could go to the Nevada Supreme Court and the entire tax shift program is thus in question. In addition, Governor List, a Republican, has been defeated by Richard Bryan. List was a strong supporter of the tax shift program while Bryan was highly critical. The new administration will take office in January 1983.

Past Economic Growth During the past decade Nevada has exhibited one of the most rapid economic growth records in the U.S. Table 4 presents the average annual growth rates of relevant economic indicators for the Nevada economy during the 1960 and 1970 decades.

TABLE 4

Average Annual Growth Rates of Nevada Economic Indicators for the 1960s and 1970s

Economic Indicator	Average Annual Growth Rates 1960s	1970s
Total Industrial Employment	5.4%	5.5%
Population	5.5	4.6
Gross Gaming Revenues	11.1	15.3
Personal Income (Nominal)	10.5	14.3
Per Capita Personal Income (Nominal)	4.7	9.3
Personal Income (Real)	7.5	6.1
Per Capita Personal Income (Real)	1.9	1.4

Source: Bureau of Business and Economic Research Data Base, University of Nevada, Reno.

In the decade of the 1970s, industrial employment and population grew at annual rates of 5.5 and 4.6 percent, respectively. Personal income in nominal and real terms grew at annual rates of 14.3 and 6.1 percent, respectively. Real personal income is defined as nominal personal income deflated by the CPI. Per capita real income grew at the rate of 1.4 percent during the 1970s compared to 1.9 percent during the 1960s. Gross gaming revenues grew at the rate of 15.3 percent during the 1970s and even though this is a nominal measure of gaming activity, it reflects substantial increases in real gaming activity as evidenced by the significant increase in employment in the hotel-gaming-recreation category of the service sector. Hotel-gaming-recreation employment grew at an average rate of 8.0 percent during the decade of the 1970s.

This rapid growth significantly slowed by the end of the 1970s. In 1980, industrial employment, gaming revenues, nominal and real personal income grew at the rate of 4.1, 12.5, 15.6, and 1.8 percent, respectively. These reflect a less expansionary economy than experienced throughout the decade of the 1970s as a whole. In addition, the unemployment rate began to increase in the late 1970s from 5.0 percent in 1979 to 6.3 percent in 1980. The Nevada economy has experienced a further slow down in economic activity since 1980. Table 5 presents the percentage change from first quarter 1981 to first quarter 1982 for several important economic indicators. Compared to growth rates experienced throughout most of the 1970s, the Nevada economy has performed at a less than satisfactory rate. In fact, the unemployment rate for October 1982 has been reported at 11.7 percent, the highest unemployment rate for the state experienced since unemployment data have been collected. The decline in taxable sales contributed to the current fiscal problem of the state since the sales tax increased from 3.5

TABLE 5

Recent Nevada Economic Indicators, First Quarter 1981 to First Quarter 1982

Economic Indicator	Percentage Change
Total Employment (Individuals)	6.8%
Unemployment Rate (Seasonally Adjusted)	5.0
Total Industrial Employment (Jobs)	2.8
Mining	0.9
Contract Construction	-10.1
Manufacturing	5.7
Transportation and Utilities	4.7
Total Trade	5.0
Finance, Insurance, Real Estate	2.2
Service	4.0
Total Government	0.8
Taxable Sales	-1.4
Gaming Revenues	8.1

Source: Nevada Review of Business and Economics, Summer 1982, pp. 14-15.

percent to 5.75 percent in the first quarter of 1982. The timing of the tax shift could not have been more unfortunate to the state and local fiscal programs.

Nevada Economy and the National Economy The Nevada economy represents a very small part of the national economy. In 1980 Nevada's population and personal income represented 0.4 and 0.4 percent of total U.S. population and personal income, respectively. The relative smallness of the Nevada economy persists when the comparison is made on the basis of states in the western region of the U.S.; for example, Nevada's 1980 personal income represents 2.2 percent of the personal income in the Twelfth District of the Federal Reserve System which includes Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Utah and Washington.

At the same time that Nevada is relatively small compared to the regional and national economy, Nevada has exhibited a much more rapid rate of growth during the 1970s. During the 1970s, U.S. population increased at an annual rate of 1.1 percent compared to Nevada's 4.6 percent growth. U.S. personal income in nominal and real terms increased at the rate of 10.3 and 2.3 percent, respectively, compared to a rate of 14.3 and 6.1 percent for Nevada. In the Twelfth District, nominal and real personal income increased over the period from 1975 to 1980 at the annual rate of 6.4 and 1.9 percent, respectively.

Economic Profile Summary The Nevada economy is relatively simple compared to other state or regional economies in that gaming and tourist related services are the primary base activity. Economic activity is concentrated in three regions of the state with Clark County (Las Vegas) being by far the largest of the three. The Nevada economy is small compared to the national and western regional economy; however, the Nevada economy has shown an extremely high rate of economic growth, at least through 1979. Since 1979, Nevada has exhibited a slower rate of economic growth compared to the past and increased sensitivity to national economic conditions. The sensitivity of the Nevada economy to national economic conditions persists, and the reliance on gaming and tourism has raised significant discussion among policy makers. The next section addresses the relationship between the Nevada and national economy in greater detail.

III. Interaction Between the Nevada and National Economy

During the rapid growth period of the mid-1970s, policy makers and business leaders claimed that Nevada was recession proof and that the insensitivity to national swings in economic activity resulted from the dominant role of the gaming sector in the Nevada economy. Record growth in gaming revenues, rapid expansion of casino-hotels in the three major regional economic areas of the state, general development at Lake Tahoe, and other economic indicators appeared consistent with such claims. At the same time, the view that any economic system is recession proof must be regarded with skepticism.

Much of the discussion about the stability and lack of sensitivity of the Nevada economy to the national economy was based on causal empiricism at best. The recession proof hypothesis received serious empirical attention in only two studies. First, Cargill and Eadington (1978) studied quarterly time series of gaming revenues from three major economic regions of the state and found little or no evidence that the energy crisis (reflected by the higher price of gasoline and reduced availability of gasoline at various times in the 1970s) or the national unemployment rate significantly influenced gaming revenues.[5] In addition, there was no evidence of a business cycle component in growth rates of gaming revenues over the period from 1960 through 1975, using spectral methods of analysis. The results of that study were interesting, but limited in terms of dealing with the interrelationship between the Nevada and national economy. Specifically, the study was more concerned with looking at the time characteristics of gaming revenues in order to develop a forecasting framework and did not extend the analysis to other measures of economic activity within the state. Gaming revenues are recognized as an important indicator of the state economy; however, their behavior over time is the net result of price and quantity components. Thus, the analysis must be extended to measures of real economic activity to properly determine whether the Nevada economy is insensitive to the swings in national economic activity. A step in this direction was carried out in a second study by Cargill (1979).

The hypothesis that Nevada's economy is insensitive to the national business cycle must be clarified in two ways: (1) what is meant by the term recession proof and (2) taking the smallness of the Nevada economy into account, why would Nevada be sensitive to national swings in economic activity?

There are various interpretations to the phrase *recession proof* and many who have used the term in the past have not always clarified their meaning. Does it mean that the level of

economic activity in the state does not rise and fall with the level of economic activity at the national level, or alternatively that the growth rate in Nevada's economy is insensitive to national economic activity? The argument that growth rates are not sensitive is strong.

The hypothesis of recession proof should be seriously considered given the record economic growth of the Nevada economy during the 1970s. However, there are several considerations that suggest rejection of the hypothesis, at least in the growth rate form. First, Nevada depends heavily on California, since a significant amount of tourist travel into Nevada comes from California. California is a significant component of the national economy and expansions and contractions in the national economy impact on California and, in turn, impact on Nevada as California residents alter their demand for leisure time activities. Second, the same argument can be extended to other areas of the country since changes in the national economy shift the demand for leisure time activities in the non-California market area. Third, construction plays an important role in the Nevada economy. Local financial conditions are closely related to national financial conditions. The interrelationships between the local and national financial system establish a strong link between the state and national economies.

The recession proof hypothesis was investigated by examining the growth rates of industrial employment categories over phases of the business cycle from 1960 through 1978. Seasonally adjusted monthly data were used to compute average growth rates by fitting a log linear trend regression. The expansion and contraction phases of the cycle were determined by the NBER business cycle reference dates. The growth rates of employment over the two phases of the national business cycle were not consistent with the argument that Nevada is recession proof.

Further support for the sensitivity of the Nevada economy to the national economy can be obtained by examining the association between national and state seasonally adjusted unemployment rates over the period from 1970 through June 1982 in Figure 2. There is no question that Nevada's unemployment rate has closely followed the national unemployment rate. The unemployment rate is an aggregate measure of labor market conditions and as such reflects changes in participation rates of various components of the population, changes in the population base as individuals move in and out of the area. and changes in employment opportunities. At the same time, the apparent association with the national unemployment rate suggests that employment opportunities may be the dominant influence.

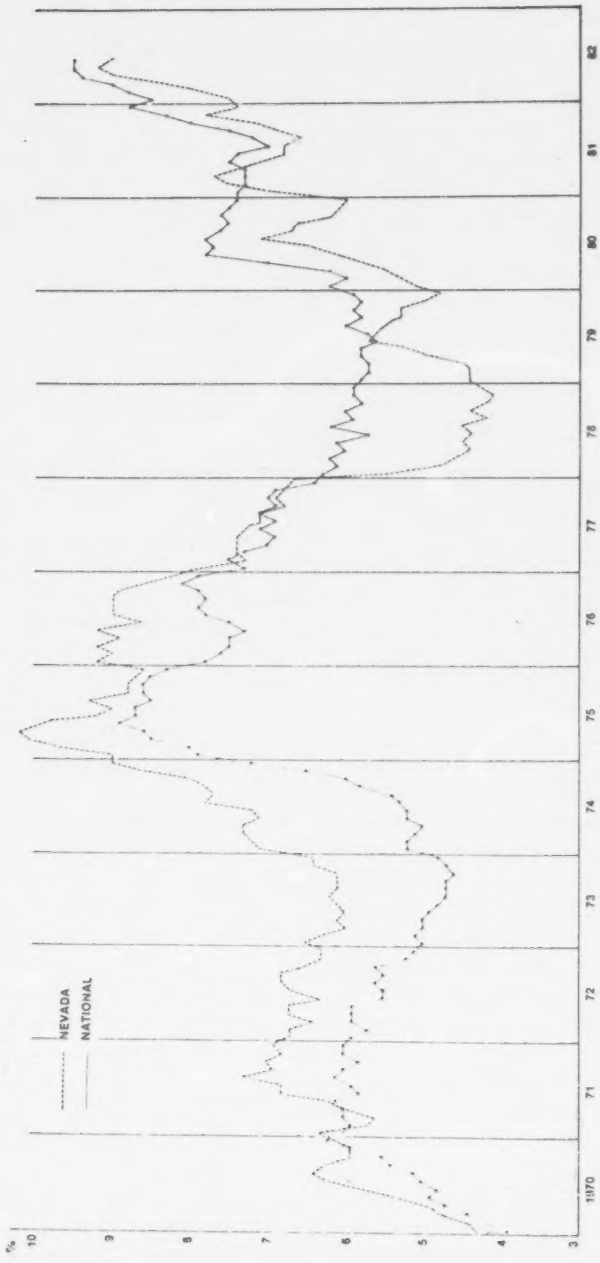

FIGURE 2: Nevada and National Unemployment Rates (Seasonally Adjusted). January 1970 — June 1982.

IV. Short and Long Run Future Economic Performance of the Nevada Economy

There are a number of difficulties in attempting to forecast Nevada economic activity for the short and long run; however, it is still useful to indicate the likely short and long run economic developments. Before doing this though, we need to consider the complicating factors.

First, the state has yet to develop a formal model that can be used to forecast economic activity, given information on national economic trends. Chu (1974) developed and estimated a multiequation annual model of the state; however, that work has not been updated. In addition, the Chu model would require short run modification to be useful as a forecasting tool. An extensive modeling effort was conducted by the Nevada State Planning Coordinator's Office through the RHO Corporation (1978) which attempted to integrate economic and demographic factors; however, the initial effort has not been continued.[6] Thus, in the absence of a model framework, forecasts of Nevada economic activity are fairly subjective.

Second, the Nevada economy has not diversified to the

extent of other states and the last several years have raised serious questions as to whether the economy should place as much emphasis on the gaming sector as in the past. Gaming has shown itself to be no more recession proof than other sectors of the Nevada economy, and increasing interest in other parts of the country in legalized gaming and the success of gaming in Atlantic City, New Jersey, have raised serious questions about the stability of gaming in the Nevada economy. Gaming and tourist related services will continue to play a significant role in the Nevada economy, but the state needs to diversify in other areas and establish a broader base sector. As the Nevada economy continues to grow in size, the sensitivity to national economic conditions will likely increase the need to diversify.

Public officials have announced the goal of greater diversification and there are a number of characteristics of the Nevada economy that should attract nongaming industries.[7] The labor market presently has considerable excess capacity. The tax structure is conducive to business since there is no corporate or personal income tax and no warehousing tax. Transportation costs and access are favorable to West Coast markets and Las Vegas and Reno-Sparks are close to Los Angeles and the Bay Area, respectively. At the same time, the goal of diversification has come into serious conflict with the fiscal condition of the state. The state is mandated by the constitution to balance the budget and revenues have been significantly less than forecasted. The state is thus faced with a restructuring of the tax and/or expenditure program. Tax restructuring might have an adverse impact on attracting nongaming industries and further reductions in social services and education would also have an adverse impact. The outcome of the current fiscal problem is not yet determined since the Legislature will meet in early 1983 to decide the fiscal program for the state. How this will be accomplished will have significant influence on achieving the goal of greater diversification as well as the longer run economic path of the state.

Third, forecasts of future Nevada economic activity are contingent on forecasts of national economic activity. Despite the detailed forecasting framework developed by Wharton Econometric Forecasting Associates, the Federal Reserve Board, and others, forecasting economic activity over the next year or two is extremely difficult. Changes in the structure of the financial system, the procedures followed by the Federal Reserve, and the fiscal program at the national level make it difficult to forecast national economic activity.[8]

These caveats should be kept in mind in outlining future economic growth of the Nevada economy. The short run performance of the economy (next year or two) is directly dependent on national economic activity. Recognizing the difficulty at this time in forecasting national economic activity, the Wharton forecasts (1982) appear about as reasonable as most current forecasts. They reflect an economy that will improve over the next two years, but not by substantial amounts. Real GNP will grow 3.4 and 4.6 percent in 1983 and 1984, respectively; however, unemployment will be 9.4 and 8.7 in 1983 and 1984, respectively. The rate of inflation measured by the GNP Price Deflator or the CPI will continue to decline. The GNP Deflator and CPI are forecasted to grow at 6.0 and 5.9 percent, respectively in 1983 and 1984. Interest rates on AAA bonds are forecasted to be 10.4 percent in 1984 with a prime rate forecasted at 11.4 percent. At present, the forecasted inflation rate and interest rate need to be revised. Current (November 1982) figures indicate that inflation and interest rates are declining more than forecasted by Wharton as of September 28, 1982. Overall, the Wharton forecasts indicate an anemic but expanding economy in 1983 and 1984. The fiscal program of the federal government and the conduct of monetary policy by the Federal reserve are the major unknowns.

The Nevada economy is likely to experience the same type of expansion in the coming quarters. The expansion at the national and hence state level will develop more slowly than previous expansions. Even though interest rates will continue their downware movement over the first and second quarter of 1983, they will remain much higher than in previous expansion periods. The uncertain course of the federal fiscal program and the projected size of the federal deficits over the next few years will contribute to high interest rates. As the rate of inflation declines, the real rate of interest will remain high by historical standards and will continue to have an adverse impact on the Nevada economy. Construction, capital expenditures to support gaming and nongaming industrial activity and consumption spending for durables will be restricted by high real interest rates. The projections for the national unemployment rate also suggest that the Nevada economy will experience a slow recovery in 1983. The unemployment rate will decline slowly to 8.7 percent in 1984. Nevada unemployment has typically moved with the national rate. To the extent the Nevada unemployment rate measures the economic health of the state, Nevada can expect only a moderate recovery.

The fiscal situation of the state is uncertain given the constitutional questions raised over the tax shift package, the decline in state revenues, and the defeat of List who strongly argued in favor of the shift in tax base from property to sales taxes. The Legislature in early 1983 is unlikely to completely reverse the previous shift toward sales taxes, but will change the tax structure in some manner, at least to refectify the legal issues. It would appear that expenditure adjustments may be a major method of balancing the budget. Continued reliance on sales taxes in any form will make the fiscal program of the state unstable and more susceptible to national swings in economic activity than in the past.

Thus, the short run economic outlook for the Nevada economy is not optimistic. The expansion at the local level will reflect the forecasted anemic character of the national expansion in 1983. The fiscal problems of the state will continue as long as a significant proportion of state and local revenues is tied to the sales tax. Ironically, continued progress in bringing inflation under control will likely worsen the revenue prospects for the state even if the national economy rebounds more than forecasted in terms of real economic growth.

There is one thing definitely clear regarding the short run

outlook for Nevada. Whatever the strength of the expansion in 1983, the Nevada economy will not experience the magnitude of growth witnessed in the 1970s.

The longer run economic outlook for Nevada is also not certain. Projections of population to the year 2000 prepared by the Bureau of Business and Economic Research imply a 3.3 annual population growth rate. While this is less than experienced during the 1960s and 1970s, the projected population level suggests significant long run growth in the Nevada economy. There are numerous forces that will push the economy along a fairly high growth path and the resource base of Nevada can support significant growth in the future. At the same time, the past has taught several important lessons. First, gaming is not recession proof and is likely to face increased competition from other areas as legalized gaming is expanded. Second, the Nevada economy is also not recession proof. It may be less susceptible to the business cycle than other regions, but it is not an economic island unto itself. Third, the economy is in serious need of diversification. Fourth, the fiscal structure of the state is not conducive at this point to stimulating diversification, given that significant reductions in expenditures will be necessary to balance the budget.

V. Conclusion

During the 1970s, the Nevada economy has experienced one of the fastest rates of growth in recent history. The present and future indicate that growth will continue in the 1980s and 1990s; however, this growth will not be as rapid and in order to be stable and viable, will require significant structural change to achieve greater diversification.

Footnotes:

[1]An interesting overview of the sagebrush rebellion emphasizing the relationship between property rights and legal efficiency can be found in Dobra and Uhimchuk (1981-1982).

[2]The state capital is located in Carson City, 30 miles south of Reno-Sparks and 30 miles east of South Lake Tahoe. Douglas County statistics are defined to include Carson City since they are geographically and economically close to each other. The data used in this paper are drawn from the data base system maintained by the Bureau of Business and Economic Research as well as standard sources published by various U.S. government agencies.

[3]Employment and gross gaming revenue percentages are based on first quarter 1982 data.

[4]The development of the gaming sector is summarized by Eadington (1978) and Eadington and Hattori (1978).

[5]In this study, Carson City was not included in the South Lake Tahoe region.

[6]There have been other model building efforts short of a state-wide model. Hestor and Rosen (1981) developed an annual econometric model for Washoe County and Cargill and Walker (1980/1981) developed a forecasting framework for state general revenues.

[7]An extensive study of the diversification issue with regard to Washoe County has been prepared by Evans, White, White and Plant (1982). In southern Nevada, the diversification issue has received much attention by the Nevada Development Authority which was created to encourage nongaming industrial development (First Interstate Bank of Nevada, 1982).

[8]Significant structural changes in the financial system have been initiated by the 1980 Deregulation and Monetary Control Act and more recently, in the 1982 Garn-St. Germain Depository Institutions Act. In addition, the conduct of monetary policy has significantly changed since October, 1979. These, along with large federal deficits projected for the next few years, make it difficult to determine future national and hence, Nevada economic activity. Cargill and Garcia (1982) discuss a number of the issues with regard to the financial system and the conduct of monetary policy.

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Determining the Attractiveness of Firms For Industrial Diversification: Seeking Consensus From Internal and External Sources

*By Gano S. Evans, Sam E. White, Georgia K. White, and Robert Plant**

*Seeking to increase the level of economic diversification in the Truckee Meadows area** through progressive governmental policies and plans for economic growth, Western Industrial Nevada (WIN) retained the services of the Bureau of Business and Economic Research (BBER), University of Nevada, to conduct a two-part economic diversification study. This paper is a summary report of the study team's findings and conclusions based on Phase I and Phase II of the study. The complete study is available at the Bureau of Business and Economic Research.*

The primary purpose of Phase I of the economic diversification study was to assess the current status of community attitudes about the goals, criteria, characteristics, and desirability of certain types of businesses in relation to economic expansion. The objectives for Phase I were:

(1) Obtain and process information on the desired goals, criteria for evaluation, characteristics, and industries from community leaders;
(2) Establish a process which assists governmental planners and other elected officials in identifying the most desirable new industry groups; and
(3) Aid the relevant governmental entities in their work of managing economic growth in the area.

Accomplishment of these objectives established a factual base, plus an effective process upon which planners and managers can establish a coordinated policy for economic diversification, identify target businesses/industries, and develop a successful program to attract the desired entities to the Truckee Meadows area.

Analysis of Delphi Panel Results

The development of policies for economic diversification in the Truckee Meadows will affect a diverse set of constituents. Therefore, a Delphi Panel was organized to be representative of that coalition of interest groups and individuals having interest and expertise in the area's strategies for economic diversification. In addition to WIN and the sponsoring governments, the Delphi Panel included members from distribution, manufacturing, gaming-tourism, banking, real estate development, chambers of commerce, utilities, education, trade associations, labor, and the community-at-large.

This section summarizes the key information generated by the Delphi portion of the Economic Diversification Study sponsored by Western Industrial Nevada (WIN), The City of Reno, The City of Sparks, and Washoe County.

Members of the Delphi Panel generated a data base for policy formulation by completing a series of eight mail questionnaires. By this procedure the judgments of a large and diverse set of interests were collected and aggregated.

Each of the eight questionnaires required about 30 to 40 minutes to complete and the results were used to develop four types of information:

(1) Desirable attributes for industrial diversification: A set of prioritized objectives for industrial diversification.
(2) Criteria for evaluation of potential new businesses. A prioritized set of assessment standards for establishing the desirability of potential businesses for achieving desired diversification objectives.
(3) Identification of the 15 "most desirable" types of businesses: The actual assessment and ranking of several types of businesses according to the established criteria.
(4) Community profile: A list of positive and negative community attributes which are to be considered when attracting new businesses to the local area. This document includes currently existing factors and attributes which require development.

Data generated by the Delphi Panel are contained and analyzed in Tables 1 through 5. These results represent a rank-ordered consensus of the Delphi Panel's *perceptions*

**The authors are, respectively, Professor of Managerial Sciences, Associate Professor of Managerial Sciences, Assistant Professor of Managerial Sciences, and Graduate Research Assistant, College of Business Administration, University of Nevada, Reno.*
***Includes Cities of Reno and Sparks and Washoe County.*

(subjective reality) of what the goals of economic diversification should be (Table 1); what criteria should be used to evaluate the attractiveness of relocating firms (Table 2); attractive and unattractive features of the community (Tables 3 and 4); and "Business Types" that should be recruited for relocation to the Truckee Meadows area (Table 5).

While the design of the study was explicitly objective, the study team also exerted every effort to maintain objectivity in handling and analyzing the information generated by the Delphi Panel.

Economic Diversification Goals

The Delphi Panel members developed two lists of plausible goals for economic diversification. One list was comprised of positive goals such as "we want to increase the corporate tax base;" the other list was comprised of negative goals such as "we do not want to increase air pollution." A total of 61 possible goals for economic diversification resulted from combining the two original lists.

TABLE 1

The Final Ranking of Community Goals For Economic Diversification[a]

Rank[b]	Score	Goal Statement	Importance* % of High Votes	% of Medium Votes	% of Low Votes
1	320	Develop and implement master plan	53	33	14
2	289	Attract industries requiring less water/energy use	40	57	3
3	279	Encourage small/medium sized companies to locate in Reno/Sparks	47	36	17
4	254	To attract high technology firms (R & D/electronics)	27	53	20
5	253	Promote positive image of the Truckee Meadows area	47	29	24
6	239	Promote clean/non-polluting industry	30	43	27
7	236	Maintain/upgrade the quality of life	40	20	40
8	230	Attract businesses which will "pay their own way"	30	34	37
9	227	Improve the quality of government	37	20	43
10	226	Diversify the work force	33	27	40
11	226	Broaden the tax base	23	47	30
12	225	Better understand the realities of water consumption in the area	27	33	40
13	212	Decrease dependence on gaming	27	26	47
14	204	Increase the quality of tourism growth	13	50	37
15	180	Increase the level of affordable housing to accommodate growth	23	20	57

*High categories represents ranks 1-5; Moderate represents ranks 6-10; Low represents ranks 11-15.
[a]Note: All goals are acceptable. Rank-order represents consensus of the participants in the study.
[b]Rank need not indicate order of implementation due to the need to consider economic/business opportunities.

Delphi Panel members were asked to select 15 of the 61 goals as most important for economic diversification. Then the 15 goals which received the most points (votes) were resubmitted for a final Delphi vote.[1] The final rank ordering of the 15 most important goals appears in Table 1. This table shows that slightly more than half of the responding Delphi Panel rated "Developing and implementing a Master Plan" as the most important goal for economic diversification. One-third of the responding panel members rated this goal as moderately important; and only 14% rated developing and implementing a Master Plan as the least important. Thus, we may conclude that establishing a Master Plan for economic growth and using the plan in diversification decisions is a desired activity for a majority of the community leaders.

TABLE 2

The Final Rank Ordering of Economic Diversification Criteria for Evaluating Attractiveness of Relocating Firms[a]

Rank[b]	Score	Goal Statement	Importance* % of High Votes	% of Medium Votes	% of Low Votes
1	433	Should use relatively low quantity of water	85	12	3
2	389	Should be non-polluting (air and water)	71	20	9
3	333	Should not cause undue pressure on ability of government to provide community services	56	32	12
4	276	Should make relatively large contributions to tax base	30	44	26
5	273	Should employ small to medium-sized labor force	41	21	38
6	2[illegible]	Should desire a "right to work" community	41	18	41
7	267	Should use relatively low quantities of gas and electric energy	26	39	35
8	259	Should be aware of community planning issues (polotive and negative)	26	48	26
9	249	Should be aware of positive and negative ramifications of tax structure	21	41	38
10	244	Should want to be a "good neighbor" in community	24	47	29
11	236	Should emphasize high technology	21	44	35
12	230	Should be aware of the need to provide entry level housing	18	41	41
13	222	Should employ people who already live here	26	33	41
14	197	Should be aware of the variety of local educational institutions and their relative capabilities	9	41	50
15	195	Should be aware of government regulations at all levels	6	47	47

*High categories represents ranks 1-5; Moderate represents ranks 6-10; Low represents ranks 11-15.
[a]Note: All criteria represent positive fact[illegible] for company evaluation. Rank-order represents consensus of the participants in [illegible] study.
[b]Rank need not indicate order of implementation due to the need to consider economic/business opportunities.

At the other end of the importance scale, "Increasing the level of affordable housing to support economic growth" is a relatively low priority goal. Only 23% of the panel members saw this goal as highly important; 20% saw it as moderately important; and over one-half (57%) saw it as least important among the top 15 diversification goals.

Evaluation Criteria

The Delphi Panel members listed a total of 34 criteria for evaluating the attractiveness of a prospective business considering relocation to the Truckee Meadows area. Examples of some of those criteria are: "degree to which a company encourages an international orientation" and "degree to which new business is compatible with existing businesses."

The original list of 34 criteria was compiled by the Delphi Panel. Table 2 presents the final rank ordering of the evaluation criteria for relocating firms.

Only two criteria were agreed upon as being "highly important" by a large majority of Delphi panelists. Both of these criteria relate to the environmental issues of water useage and air and water pollution. One other criterion appeared on slightly over half of the ballots, i.e., degree of reliance on government for providing community services (56%). Beyond these three items most criteria were approximately equal in the dispersion among the three categories of importance (high, moderate, or low). This information tends to indicate that beyond using items #1, #2, and #3 for evaluation of new businesses, decision-makers will have to employ a wide range of criteria for establishing desirability of new firms. The traditional practice of using a few key criteria does not appear appropriate for the Truckee Meadows area. To satisfy the diverse factions within the community, at least 13 of the criteria should be used in the evaluation process.

TABLE 3

The Positive Characteristics of the Truckee Meadows[a]

Rank[b]	Score	Item	Importance* % High	% Medium	% Low
1	421	Favorable tax structure	76	21	3
2	386	Close proximity to markets	74	14	12
3	358	General quality of life	53	45	12
4	348	"Right to work"	56	23	21
5	312	Good transportation network	44	35	21
6	294	Freeport law	44	32	24
7	268	Favorable business climate	18	56	26
8	262	Small to moderate size of Truckee Meadows communities	26	36	38
9	238	Abundant outdoor recreation	12	53	35
10	221	Good public school system	12	50	38
11	216	Plentiful labor supply	18	32	50
12	211	Four seasons - moderate, dry climate	24	36	50
13	208	Good university and community college system	18	35	47
14	176	Easy access to government	9	38	53
15	161	Adequate cultural opportunities	12	23	65

*High categories represents ranks 1-5; Moderate represents ranks 6-10; Low represents ranks 11-15.
[a]Note: All are positive assets to the area. Rank-order represents consensus of the participants in the study.
[b]Rank need not indicate order of implementation due to the need to consider economic/business opportunities.

Positive Characteristics of the Truckee Meadows Area

The Delphi Panel developed an initial list of 30 positive characteristics or advantages of the Truckee Meadows area as a relocation site. Table 3 contains the final rank ordering of the 15 most positive characteristics. The top four positive characteristics are agreed upon by a majority of the Delphi Panel. Beyond this level, the importance of the remaining positive characteristics is viewed differently by many panelists. For example, the importance of "being a small to medium-size community" (item #8) is rated almost equally between high (26%), medium (36%), and low (38%) by the panelists.

Negative Characteristics of the Truckee Meadows Area

In this category, the first listing contained 32 negative characteristics or disadvantages of the Truckee Meadows area as a possible relocation site. Table 4 contains the final rank ordering of the 15 most negative characteristics. These

TABLE 4

The Negative Characteristics of the Truckee Meadows[a]

Rank[b]	Score	Item	Importance* % High	% Medium	% Low
1	367	Uncertainty about water supply	56	38	6
2	351	High utility rates	56	38	6
3	310	High cost of housing	47	35	18
4	295	No growth attitude of many citizens	50	24	26
5	294	Poor management of water resources	26	53	21
6	287	No master plan	30	52	18
7	275	Biased news media in general, press in particular	35	39	26
8	273	Lack of skilled labor/ untrained labor force	41	24	35
9	268	Reno government has a bad image	35	27	38
10	268	Poor planning of sewer capacity	32	33	35
11	246	High cost of industrial land	26	36	38
12	244	Transient labor force	21	35	44
13	216	Lack of cooperation between three local governments	18	41	41
14	200	Crime rate	3	50	47
15	187	Governments have too much bureaucratic red tape	15	26	59

*High categories represents ranks 1-5; Moderate represents ranks 6-10; Low represents ranks 11-15.
[a]Note: All represent opportunities for enhancement of the area. Rank-order represents consensus of the participants in the study.
[b]Rank need not indicate order of implementation due to the need to consider economic/business opportunities.

data show that the top two negative characteristics are agreed upon as being of high concern to only a slight majority of the panelists. Beyond this agreement, there is little consensus about the relative importance associated with the remaining negative features. The dispersion among items tends to imply that interested parties should work on a wide variety of features when attempting to rectify possible disadvantages.

Most Desired Types of New Business

The first Delphi Panel members "wish list" for this category included 34 different business types that were viewed as being desirable for the Truckee Meadows area. Table 5 presents the final results on the desired types of businesses. A review of this information shows that the top two desired types of new business were agreed upon by a majority of panel members. A total of 70% of the panel members placed corporate and regional headquarters as a highly desired type of new business; a total of 63% placed light to medium manufacturing with an emphasis on in-plant fabrication and assembly as a highly desired type of new business. On the other end of the desirability scale, 50% of the panelists placed computer repair centers as a low priority or as the least desired type of new business. Surprisingly, almost one-half (47%) of the panelists listed new tourism/recreational type business as having a relatively low desirability. Beyond these points of agreement, little consensus is shown in the final voting results. It is important to emphasize that these 15 types of business are agreed on as being the most desired types of new business. What the panel marginally disagrees on is the relative rank ordering of 12 of the 15 business types.

TABLE 5

The Final Rank-Order of Business Types According to Desirability[a]

Rank[b]	Score	Business Type	Desirability* Most	Middle	Least
1	378	Corporate/regional headquarters	70%	13%	17%
2	346	Light to medium manufacturing with emphasis on in-plant fabricating and assembly	63	27	10
3	303	Distribution	43	44	13
4	302	Electronic R & D	47	30	23
5	268	Electronic manufacturing	37	33	30
6	253	Small aircraft manufacturing	27	43	30
7	249	Solar power companies	30	40	30
8	245	Gaming equipment suppliers and manufacturers	27	43	30
9	241	Computer software firms	30	33	37
10	235	Financial/credit/credit card/ insurance/leasing companies	40	20	40
11	224	Recreational equipment manufacturers	17	40	43
12	222	Medical R & D	17	46	37
13	202	Tourism/recreational firms	27	26	47
14	198	Mining R & D	17	40	43
15	197	Computer repair centers	13	37	50

*Most category represents ranks 1-5; Middle represents 6-10; Least represents 11-15.
[a]Note: All are desirable and meet the expansion and diversification goals of the area. Rank-order represents consensus of the participants in the study.
[b]Rank need not indicate order of implementation due to the need to consider economic/business opportunities.

On February 24 and 25, 1982, 75 local government and business leaders attended an Economic Diversification Workshop sponsored by WIN. The Delphi results presented in Tables 1 to 5 served as the central data base for planning, design, and implementation of the workshop. The successful output from the workshop was in direct agreement with the Delphi results which not only illustrates the practical application of the findings, but more importantly, the wide acceptability of these results by the community at large.

Economic Diversification in the Truckee Meadows: Phase II Results

While the Delphi Study (Phase I) was representative of the coalition of local (internal to the community) interest groups and individuals having high interest and expertise in the area's strategies for economic diversification, Phase II was designed to generate a second data base summarizing opinions and perceptions from a sample of decision-makers representing firms (external to the community) considering relocation site selection. It is now possible to compare and contrast internal and external assessment of the Truckee Meadows area as a potential industrial site.

Research Design - Phase II

The necessary information was obtained utilizing a two level approach.

1. Personal interviews were conducted with a sample of eight consulting firms specializing in relocation and new site studies with regard to:
   A. General impressions of the Truckee Meadows area as a potential industrial or business site for their clients;
   B. Perceptions about the communities of Sparks and Reno, per se, as potential industrial sites.
   C. Perceptions about clients' biggest concerns and their priorities when considering a site for expansion/ relocation;
   D. The extent to which these concerns and priorities vary by industry;
   E. Specific impressions of the Truckee Meadows area in regard to tax structure, market proximity, union-management relations, transportation network, labor supply, utility rates, housing situation, acquisition costs, and climate for growth;
   F. Experience with clients in light manufacturing, distribution, electronic R & D, gaming equipment, financial-credit card-insurance-leasing, and tourism-recreation.
2. A sample of 20 firms felt to be representative of requirements for industrial or commercial diversity was chosen for second level interviews. From the results and information developed from the interviews with consulting

firms, a structured telephone questionnaire was developed in which 20 executives, known to be involved in the analysis of alternate site locations, were first asked to rate the relative importance (very, somewhat, not) for each of the site selection factors listed below:

A. (1) Tax structure;
(2) Proximity to markets;
(3) Union management relations;
(4) Transportation network (air, rail, and truck;
(5) Labor supply and cost (skilled and unskilled);
(6) Government attitudes toward industrial growth;
(7) Energy sources and costs (electric, water, and gas);
(8) Housing (cost and availability);
(9) Site cost;
(10) Educational facilities (university, community college, technical school);
(11) Quality of life; and
(12) 1-stop economic development agency.

Then, if the responding executives had some knowledge or experience with the Truckee Meadows area as a potential industrial site, they were asked to rate the quality (good, fair, poor, or not sure) of each of the above factors specifically for the Truckee Meadows area.

Results

Data specifically generated in Phase II are contained and analyzed in Tables 6, 7 and 8. There were no differences in the content of responses between the consultants and executives of selected firms.

Table 6 shows that the factors of market proximity, [illegible]

TABLE 6

General Importance of Site Selection Factors

Factor #	Description	Importance Score/Rank*	Very Important		Somewhat Important		Not Important	
			n	%	n	%	n	%
1	Tax Structure	22/15	5	25%	12	60%	3	15%
2	Proximity to Markets	38/1	18	90	2	10	0	-
3	Union-Management Relations	29/6	12	60	5	25	3	15
4	Air Transportation	11/24	2	10	7	35	11	55
5	Rail Transportation	28/8	10	50	8	40	2	10
6	Truck Transportation	38/1	18	90	2	10	0	-
7	Skilled Labor-Supply	22/15	8	40	6	30	6	30
8	Unskilled Labor-Supply	18/20	4	20	10	50	6	30
9	Skilled Labor-Cost	23/14	7	35	9	45	4	20
10	Unskilled Labor-Cost	22/15	8	42	6	32	5	26
11	Government Attitudes Toward Industrial Growth	28/8	9	45	10	50	1	5
12	Reliable Supply of Electricity	36/3	17	85	2	10	1	5
13	Reliable Supply of Water	32/4	15	78	2	11	2	11
14	Reliable Supply of Gas	29/6	12	63	5	26	2	11
15	Cost of Electricity	30/5	11	55	8	40	1	5
16	Cost of Water	24/13	9	45	8	40	3	15
17	Cost of Gas	27/10	10	50	7	35	3	15
18	Cost of Housing	18/20	5	26	8	42	6	32
19	Availability of Housing	19/18	5	26	9	47	5	26
20	Site Cost	25/12	7	37	11	58	1	5
21	University	12/23	2	11	8	42	9	47
22	Community College	11/24	2	11	7	36	10	53
23	Technical Schools	13/22	4	21	5	26	10	53
24	Quality of Life	26/11	8	40	10	50	2	10
25	Single Economic Development Agency	19/18	4	40	11	55	5	25

*Very Important = 2; Somewhat Important = 1; Not Important = 0; Multiplied by # of Respondents.

transport, reliable sources of energy, cost of electricity, and union-management relations are relatively more important considerations in the decision to relocate. Air transport, educational institutions, supply of unskilled labor, and cost of housing were seen as being relatively less important to decisions about site location for these firms.

Table 7 gives quality rankings of the 25 site location factors as related specifically to the Truckee Meadows area. Factors with the highest quality ratings are truck transportation, tax structure, supply of electricity, quality of life and proximity to markets. While the low ratings are assigned to the lack of a one-stop economic development agency, an unpredictable water supply, absence of a pool of skilled labor, poor supply of housing, and lack of technical schools.

Table 8 summarizes comments made by executives during the telephone interviews. Positive comments are related to the generally favorable business climate of the Truckee Meadows area and its "high quality of life." Negative comments centered around the image created by a transient labor force, gambling environment, and the lack of a coherent, harmonious infrastructure to encourage diversification activities in the area.

TABLE 7

Site Selection Factors in the Truckee Meadows Area
A Qualitative Index* of Ratings

Factor #	Description	Quality Score/Rank	+1 Good	0 Fair	-1 Poor	0 Not Sure
			n/%	n/%	n/%	n/%
1	Tax Structure	6/2	6/60	1/10	—	3/30
2	Proximity to markets	4/6	5/50	2/20	1/10	2/20
3	Union-mngt. relations	2/13	3/30	1/10	1/10	5/50
4	Air transportation	2/13	4/44	3/33	2/22	—
5	Rail transportation	5/4	6/56	2/22	1/11	—
6	Truck transportation	8/1	8/80	2/20	—	—
7	Skilled labor-supply	(-2)/23	2/18	3/27	4/36	2/18
8	Unskilled labor-supply	3/12	5/45	3/27	2/18	1/9
9	Skilled labor cost	1/19	2/22	6/66	1/11	—
10	Unskilled labor cost	4/6	4/44	5/55	—	—
11	Government attitudes toward industrial growth	1/19	4/36	3/27	3/27	1/9
12	Reliable supply of electricity	6/2	7/63	3/27	1/9	—
13	Reliable water supply	(-3)/24	3/27	2/18	6/54	—
14	Reliable supply of gas	4/6	5/45	3/27	1/9	2/18
15	Cost of electricity	4/6	5/45	1/9	1/9	4/36
16	Cost of water	2/13	4/36	—	2/18	5/45
17	Cost of gas	4/6	5/45	—	1/9	5/45
18	Cost of housing	2/13	4/36	2/18	2/18	3/27
19	Availability of housing	(-1)/21	3/27	—	4/36	4/36
20	Site cost	3/12	4/36	5/45	1/9	1/9
21	University	4/6	5/50	—	1/10	4/40
22	Community College	2/13	3/30	—	1/10	6/60
23	Technical schools	(-1)/21	—	1/10	1/10	8/80
24	Quality of life	5/4	7/63	2/18	2/18	—
25	Single Economic Dvlp. Agency	(-4)/25	—	—	4/40	6/60

#Good = +1 x n; Fair = 0 x n; Poor = -1 x n; Not sure = 0 x n.
*Quality Score = Good + Fair - Poor

The "Hi-Tech" Dilemma

There seems to be an almost universal community appeal to developing diversification plans which emphasize the recruitment of what is commonly referred to as "hi-tech" firms to the Truckee Meadows area.[2] The aura of glamour and technical mystique surrounding this type of industry has resulted in fierce competition from nearly every community, city, and state wishing to diversify their economy to recruit these firms to their respective areas. From our interviews with consultants and analysis of other studies in this area, Table 9 summarizes the criteria used by "hi-tech" firms to guide their decisions in site selection.

A comparison of the site selection factors in Table 9 with the general factors considered by the more traditional type of manufacturing/distribution firms reveals that "hi-tech" firms give considerably more weight to the highly interrelated factors of quality of the labor force; university, community college and technical school infrastructure; "quality of life;" and quality as well as quantity of water. Tables 6 and 7 indicate that with the exception of "quality of life,"

TABLE 8

Summary of Comments Made by Executives in the Context of Telephone Interviews*

Positive

Reno Area has a good climate for business (several respondents)

Reno/Sparks has good potential to attract diversification (several respondents

Site costs are relatively less expensive in Nevada (several respondents

Reno/Sparks has much more going for it than Las Vegas—less of the transient, gambling image (several respondents)

Neutral

"Considered area for warehouse, but went to Sacramento because of its more central location."

"We looked at Reno five years ago, but Reno's geographic location which creates smog problems precluded our moving there."

Negative

Need to straighten out problems related to sewer hookups (several respondents)

Too many transient workers because of gambling (several respondents)

"Zoning is extremely difficult"

"Looked at the area in 1980, but corporate headquarters said no because of 'Sin-City' image"

"Need to play down glitter-gambling image of Nevada"

"We came very close to relocating in the area, but the squabbling between Reno and Sparks turned us off"

"The fact that you don't have one agency that can handle all relocation inquiries was a deterrent to our company"

**Note:* A statement in quotes, ("_____") is verbatim from one respondent only.

these same factors of site selection for the Truckee Meadows would not be adequate for firms in the "hi-tech" sector.

TABLE 9

"Hi-Tech" Industry Criteria for Site Selection

	Points Possible*
I. **LABOR** (40)	
A. Availability	
1. Experience	
2. Unemployed labor pool	
3. Net immigration	
B. Skills	
1. College/vocational/technical training	
C. Attitudes	
1. Union strength	
2. Productivity	
3. Retainability	
II. **SOCIOECONOMIC**	
A. "Quality of life"	
B. Availability of housing	
C. Demographics	
D. Community acceptability	
III. **MONETARY**	
A. Labor rates	
B. State and local taxes	
C. Land costs/lease costs	
IV. **MANUFACTURING SUPPORT**	
A. Transportation network	
B. Availability of supplies	
C. Utilities (water quality and quantity)	
Total points possible	100*

Source: Consulting firm specializing in site selection for "hi-tech" industries (anonymity assured by study team)

*Actual-Total of labor is 40 out of 100 possible points, remainder of points break-down is confidential—not released by consulting firm.

Linkage to Delphi (Phase I) Results

Table 10 presents a comparison of the opinions and perceptions of the Delphi Panel with the sample of consultants and executives interviewed in Phase II.

Interpretation of these data shows that while tax structure, quality of life, and rail transportation in the Truckee Meadows received high rankings from both the Delphi Panel and external executives, these factors are not particularly important to the site location decision. On the other hand, such factors as government attitudes toward industrial growth, reliability of water supply, and skilled labor supply in the Truckee Meadows received poor marks from each set of respondents, but are seen as being important to the site location decision.

The overall congruency of the quality assessments for each group of respondents is positive. However, the differences between quality rankings for factors in the Truckee Meadows area and their relative degree of importance to the actual site location decision is new and useful information generated by the Phase II study.

TABLE 10

A Comparison of Site Location Ranked Factors: Perceptions of Local Delphi Panel Versus Phase II Executive Respondents

Factor	Delphi Rank	Phase II Quality	Phase II Importance
1. Tax structure	1	2	15
2. Proximity to markets	2	6	1
3. Quality of life	3	4	11
4. "Union-management" relations	4	13	6
5. Air transportation	5	13	24
6. Rail transportation	5	4	8
7. Truck transportation	5	1	1
8. Skilled labor-supply	19	23	15
9. Unskilled labor-supply	8	12	20
10. Skilled labor cost	NA*	14	19
11. Unskilled labor cost	NA*	6	15
12. Government attitudes toward industrial growth	20	19	8
13. Reliable supply of electricity	NA*	3	2
14. Reliable supply of gas	NA*	6	6
15. Reliable water supply	25	24	4
16. Cost of electricity	24	6	5
17. Cost of gas	24	6	10
18. Cost of water	24	13	13
19. Cost of housing	21	13	20
20. Availability of housing	NA*	21	5
21. Site cost	18	12	12
22. University	9	6	23
23. Community college	9	13	24
24. Technical schools	NA*	21	22
25. Single economic development agency	NA*	25	18

**Note:* Not addressed specifically in Delphi format.

Recommendations for Action

The content analysis from the formal interviews with consultants and the comments from executives lead to the following general recommendations:

1. There is a definite need for a single organizational entity, e.g., Truckee Meadows Economic Development Corporation which would provide an "in-place" infrastructure to facilitate site development, financing arrangements, sewer hookups, etc. This organization would provide the crucial linkage between a potential client's firm and those government and private sector institutions which need to be involved in providing information necessary as to that firm's decision.[3]
2. Given our analysis of the "hi-tech" dilemma, diversification plans should not place too much emphasis on the recruitment of hi-tech firms at this time. This caveat is based upon the assumption that present economic conditions coupled with the political realities of Nevada can-

not be assumed to produce the quantity of funds necessary to develop immediately or update sufficient educational programs at the university, community college, and technical school levels that would be acceptable to this type of industry.

Specific recommendations and/or action plans that can be used immediately by management of the newly constituted Truckee Meadows Economic Development Organization are developed in Table 11. The data from Tables 6 and 7 are combined to be used as a management/planning aid with rationale leading to tactical/action codes as follows:

9 factors (00 codes) requiring no action;
2 factors (-- codes) indicating problems of serious concern for potential industrial clients;
5 factors (- codes) indicating problems that need improvement and may be of concern for potential industrial clients;
5 factors (+ codes) which will be seen as salient for potential industrial clients and can be used as promotional features for the area; and
4 factors (+ + codes) which will be seen as highly salient for potential industrial clients and can be heavily stressed in promoting the area.

TABLE 11

A Comparison of Ranked Site Selection Factors: General Importance Versus Qualitative Perceptions of Truckee Meadows

Factor #	Description	Rank Importance	Rank Quality	Difference	Interpretation	Tactical Code*
1	Tax Structure	15	2	+13	No problem, but not very important	0
2	Proximity to Markets	1	6	- 5	Highly important, but uncontrollable	0(+)
3	Union-Management Relations	6	13	- 7	Important problem	-
4	Air Transportation	24	13	+11	No problem, but not very important	0
5	Rail Transportation	8	4	+4	Important, no problem	+
6	Truck Transportation	1	1	-0-	Highly important, no problem	+ +
7	Skilled Labor-Supply**	15	23	- 8	Somewhat important, problem	-
8	Unskilled Labor-Supply	20	12	+8	No problem, but not very important	0
9	Skilled Labor-Cost**	14	19	- 5	Somewhat important, problem	-
10	Unskilled Labor-Cost	15	6	+9	No problem, but not very important	0
11	Government Attitudes Toward Industrial Growth	8	9	-11	Important, problem	-
12	Reliable Supply of Electricity	3	2	+11	Highly important, no problem	+ +
13	Water Supply**	4	24	-20	Highly important, definite problem	--
14	Gas Supply	6	6	-0-	Highly important, no problem	+ +
15	Cost of Electricity	5	6	- 1	Highly important, no problem	+ +
16	Cost of Water	13	13	-0-	Important, no problem	+
17	Cost of Gas	10	6	+4	Important, no problem	+
18	Cost of Housing	20	13	+7	No problem, but not very important	0
19	Availability of Housing	5	21	- 16	Highly important, problem	--
20	Site Cost	12	12	-0-	Important, no problem	+
21	University**	23	6	+17	No problem, but not important	0
22	Community College**	24	13	+11	No problem, but not important	0
23	Technical Schools**	22	21	+1	No problem, but not important	0
24	Quality of Life**	11	4	+7	Important, no problem	+
25	Single Economic Development agency	18	25	- 7	Problem but somewhat important	-

*Tactical code: 0 = Do Nothing; - = Needs Improvement Program; -- = Needs Extensive Improvement Program; + = Salient; + + = Highly Salient
**_Note:_ "Hi-Tech" Industry would rank these factors very high in importance.

Management can now identify, plan and implement programs which require coordination between public and private sector organizations to remedy specific problems regarding economic diversification in the Truckee Meadows area.

Conclusion: Phase II

Ten of the 20 respondents had some degree of knowledge about the Truckee Meadows area vis-a-vis a potential business location. Table 7 summarizes the qualitative ratings of the 25 site selection factors as related specifically to the Truckee Meadows area. Factors with the highest quality ratings are truck transportation, tax structure, supply of electricity, quality of life and proximity to markets. While the low ratings are given to the lack of a single economic development agency, an unpredictable water supply, absence of a pool of skilled labor, poor supply of housing, and lack of technical schools.

Table 11 combines the data from Tables 6 and 7 and is designed as a management/planning aid which identifies tactics to be employed by the newly constituted organization for economic diversification in the Truckee Meadows.

Limitations

Originally the study team intended to include a representative sample of firms from each of six industries identified in Phase I of the economic diversification study as the area's "best potential clients." Unfortunately, the site-location consultants refused permission for us to use their client lists to complete the second part of our information collection. Thus, the second portion is limited to a narrower range of potential clients mostly concentrated in the production of consumer goods.

The consultants represent firms within each of the six industries. Thus, it is reasonable to infer that the consultants' responses are consistent with the responses that may have been obtained from those industries. The very high degree of agreement about all factors related to the location decision between consultants and individual firm executives does serve to strengthen these results.

Footnotes:

[1]This design (data reduction and Delphi voting procedure) was utilized for each of the four information categories (Goals, Criteria, Positive-Negative Community characteristics, and Business Types.)

[2]One of the first requirements of a newly formed Economic Development Corporation is the need to define "Hi-tech" and then determine those components of the industry that may be compatible with parameters developed in Phase I and Phase II of this study.

[3]The fact that this recommendation came from interviews with 28 executives external to the Truckee Meadows Area serves as strong reinforcement to the mandate to design an umbrella organization for economic development provided by the Delphi study.

Reaganomics: A Mid-Term Assessment

*by Bruce W. Kimzey**

This article is based on the author's book, *Reaganomics,* published by West Publishing Company, St. Paul, Minnesota, copyright 1983.

Reaganomics is the term used to describe the entire Reagan administration program of economic recovery and reduction of the role of government in economic affairs, but is most often associated with the President's tax and spending reduction programs.

In reviewing Reaganomics, the author observes that according to "supply-siders," a tax cut leads primarily to an increase in saving rather than in consumption. Supply-side economics postulates that increased savings cause interest rates to decline and investment projects become more attractive to business. Investment in new plants and equipment will increase the ability of the business sector to supply goods and services and satisfy the existing demand. The secret to the potential success of the supply-side tax cut depends on structuring the cut to ensure an increase primarily in saving rather than in consumption.

Reaganomics seems to be built on the hope that business will respond positively once funds from new savings are made available. But because the links between taxes, saving, and investment have not been as strong as predicted, many middle income Americans feel betrayed by supply-side theories. Now they see little evidence that trickle down theory works, especially during a recession. Moreover, the President's goal of stimulating investment by the private sector will not be reached if present and projected levels of borrowing by the federal government crowd business firms out of the credit markets.

The author concludes that an important issue is the ability of Reaganomics to produce the long-run stability and growth it promised. Detractors of Reaganomics have already labeled it an unqualified failure in view of the double digit unemployment rate. Supporters argue that the major parts of supply-side theory never were really implemented or have not been given adequate time to reach their objectives. The impact of the Reaganomics experiment in public policy has been great—and a new Congress will now decide whether or not to Stay the Course.

**Bruce W. Kimzey is Director of the Center for Economic Education and Associate Professor of Economics, College of Business Administration, University of Nevada, Reno.*

With the possible exception of FDR, no American president in this century can match the success of Ronald Reagan in changing the direction of the federal government's economic policy during his first two years in office. Reagan's success in convincing Congress to approve his proposals for massive tax and expenditure cuts has surprised even his most avid supporters. In addition, just as FDR's New Deal programs became synonymous with government expansion, the new Reagan economics program has come to mean sizeable, even devastating, cuts in virtually all non-defense expenditures.

President Reagan was elected as a fiscal conservative, with promises to cut taxes, expenditures, government regulation, inflation, interest rates, and unemployment. Yet in less than two years, his programs to implement his promises have become the center of the greatest controversy over economic policy since the Great Depression. His programs of "Reaganomics" mean almost as many different things to voters as there are voters. Even economists have not yet fully comprehended the potential impacts of such a major policy shift.

But the President's economic program was not developed in a vacuum, without theory, precedent, or expectations. It is a fairly logical combination of his conservative background and bits and pieces of several economic theories, but supported by limited economic experience and policies of the past. But the failures of the economic program of the Carter admininstration and its predecessors, and the frustrations over an expanding and increasingly insensitive and unresponsive federal bureaucracy, led voters to turn to the Reagan program in the fall of 1980.

President Reagan inherited an economy with a number of serious problems. Inflation and high interest rates were the major concerns, but unemployment, energy shortages, high taxes, and falling productivity also demanded immediate attention by the President and his economic policy advisers. Attempts by previous administrations to deal with these problems have been unsuccessful, and some critics argued that policy had created some problems in the unsuccessful attempts to solve others. But the Reagan program, which places emphasis on reducing inflation and the size of the government sector, has been blamed for the recession of 1981-82 and the existence of the highest rate of unemploy-

ment since the Great Depression. In addition, the President's expressed goals of expanded savings, investment, and business confidence have not been met. Indeed, by the summer of 1982, confidence in the economy and the President's program was decreasing rather than increasing. Critics were arguing that the President's goal of lowering the inflation rate was being reached at a cost in unemployment and misery that was far too great.

"Reaganomics" is the term used to describe the entire Reagan administration program of economic recovery and reduction of the role of government, but is most often associated with the President's tax and spending reduction programs. The tax reduction program is the result of the President's conversion to what economists call "supply-side" economic theory, with particular emphasis on the "Laffer curve" arguments for tax rate changes. In addition, the President has encouraged the Federal Reserve to follow a monetary control program of slow money supply growth.

For the past 40 years the principal theoretical basis for governmental budget policy has been "demand management" proposed by John M. Keynes in the 1930s. The Kennedy tax cut which finally passed in 1964 represented the first attempt at "active" budget policy, designed to stimulate aggregate demand by a large, planned budget deficit created through a tax cut on personal and corporate incomes. Since the 1964 tax cut, expansionary budget policy has been used actively to stimulate demand. Unfortunately, the opposite policy of demand contraction through budget surpluses was not used and budget, or "fiscal" policy became synonomous with government expansion, deficits, and inflation. The apparent unwillingness of budget authorities to use fiscal policy as a two-edged sword led many economists in the 1970s to reexamine the wisdom of using fiscal policy as a short-run stabilization tool.

In this setting, a small group of economists began to argue that demand management as a practical budget policy would not work. In its place they proposed to use the budget to manage the amount of aggregate supply—the total value of goods and services available in the marketplace. For example, if inflation is caused by an excess of total demand over total supply of goods and services available, then an alternative solution to reducing inflationary pressures would be to increase the supply of goods and services available to satisfy the demand. A side benefit of the plan would be that, instead of depressing the economy to reduce demand, the levels of investment, output, production, and income could be increased, creating a more healthy, stable, and growing economy. The major weapon in the supply-side program was seen as a tax policy designed to promote economic growth.

Supply-side tax theory is based on a theoretical construction called a "Laffer curve," after its creator, Dr. Art Laffer. The Laffer hypothesis is that high tax rates destroy incentives to produce and drive existing production into the underground economy and therefore reduce the tax base. Raising tax rates may thus result in an actual decrease in tax collections while cutting tax rates may lead to an increase in collections by stimulating production and increasing the tax base.

While most economists accept the general proposition that a cut in tax rates will increase incentives and expand output, few accept the Laffer argument that tax revenues will actually rise above the pre-tax levels. President Reagan not only accepted the Laffer arguments but used them as the basis for proposing the largest tax cut in U.S. history.

In addition to supply-side tax theory, President Reagan also adopted a theory of monetary policy proposed by economists known as nometarists. Monetarist theory argues that the supply of money is directly related to the level of income and prices. Inflation is a result of excessive monetary expansion and hence, the solution to inflation is a reduction in the rate of monetary growth.

Monetarist theory fits into the Reagan policy program because it shifts emphasis for controlling inflation from the federal budget to the monetary authorities. This shift should then leave the President free to use fiscal policy to stimulate investment and to reorder national priorities without fear of jeopardizing the battle against inflation.

The President's program also relies heavily on the ability to create confidence and rising expectations in the private business sector. If business were optimistic about the future, investment would increase, and income and employment would also rise. The tax cut was designed to help create this atmosphere of confidence by increasing tax benefits to business and to upper income individuals who would benefit directly from such an expansion.

Although the logical roots of Reaganomics lie primarily in traditional conservative economics, the introduction of the Laffer arguments gives new importance to tax cuts as a major tool of stabilization policy. Also implicit in the theory of Reaganomics is the belief that inflation is susceptible to monetary policy action while unemployment is not. Hence, a reduction in the inflation rate that results in a short-run increase in unemployment is an acceptable short-term tradeoff.

There is very little in the way of historical precedent for Reagan's major economic proposals. While some evidence from previous tax cuts does lend information on the ability to stimulate investment and incomes, the circumstances under which they were passed were different enough to cast some doubt on our ability to forecast accurately under current conditions. The only attempt to cut government spending substantially over a short period came at the close of World War II, and again the circumstances and the type of budget cuts were very different. Monetarist theory had not formed the basis for policy since before the Great Depression of the 1930s, although monetarists cite the evidence of recent years as proof of the money supply/price relationship.

The principal historical support for a Reagan/Laffer style tax cut comes from a series of cuts in the 1920s and the 1964 Kennedy tax cut. Between 1922 and 1925 marginal tax rates were cut from a range of 6% to 77% to a 1.5% to 25% range. As a result revenues decreased for two years and then increased throughout the remainder of the decade, but by 1929 were barely up to the 1921 level. But revenues in all

income classes over $50,000 increased by amounts ranging from 28 percent to 113 percent.

The Kennedy tax cut in 1964 produced a similar result. Rates were cut from a range of 20% to 91% to a 14% to 70% range. Revenues fell in 1964 but the increased by 31 percent by 1967. But as in the 1920s, the tax cut was followed by a period of increased savings, investment and economic growth.

While Reaganomics can find some historical basis for its policy prescriptions, the evidence from the past is neither overwhelming nor convincing. The major portions of the President's program were still largely untested in January, 1981 when he took office. Nevertheless, the historical precedents did exist and the evidence was strong enough that Congress was willing to experiment on a scale untried for many decades. Whether this experiment was based on conviction, hope, or simply frustration with the apparent failures of the Keynesian demand management experiments of the past two decades is a question that will probably never be answered fully—but is certain to be debated for many years.

President Reagan was clearly elected with a mandate to solve the inflation problem. He proposed to do so without a serious increase in unemployment by implementing a program to shift the responsibility for creating jobs and economic growth from the public to the private sector.

The President's program contained four specific parts. The first, and perhaps most important to the President's overall goals, was a substantial cut in personal income tax rates. The second was a cut in nondefensive expenditures, accompanied by an increase in the outlays for defense. The third was a program to reduce the regulatory burden on business and the fourth was to encourage the Federal Reserve to maintain its monetarist policies of slowing the rate of growth in the supply of money.

These four parts of the President's program are closely interrelated and attempt to accomplish a number of goals. The overriding goal was to reduce both the absolute and the relative size of the federal government. The corollary to this goal was the desire to increase the size of the private sector. These goals were to be reached through the President's program to restore confidence in business and create optimism and rising expectations for the future of the private economy. The tax program was expected to increase private savings and provide funds to finance growth in private investments. Increased saving and investment would cause inflation to subside and hence interest rates would fall and employment would increase. The ability of the program to accomplish all of these goals was dependent on ability to restore business confidence and create rising expectations.

President Reagan's Economic Recovery Program was submitted to the Congress in mid-February, 1981. First, he proposed a reduction in personal income tax rates of 30 percent by 1984, with the first reduction of 10 percent to take effect July 1, 1981. He also proposed substantially faster tax write-offs for depreciation of new business investments. Over the three year phase-in of the rate cuts, the 70 percent top tax rate would be reduced to 50 percent. This would stimulate personal savings, and together with increased depreciation allowances for business, greatly expand the funds available for investment in new capital goods.

These tax cuts were estimated to reduce federal revenues in fiscal 1981 by a total of $8.9 billion. The 1982 revenue loss was expected to be $53.9 billion, increasing to $100 billion in 1983 and $221.7 billion by 1986. The tax cuts would also reduce the federal government's share of GNP from 21.4 percent in 1981 to 19.6 percent in 1986 (income side).

The second part of the President's program was proposed cuts in federal spending of $4.4 billion for fiscal 1981, $41.4 billion in 1982, $79.7 billion in 1983, and $123.8 billion by 1986. These proposed cuts would reduce the federal government's share of the nation's total output of goods and services from 23 percent in 1981 to only 19 percent by 1986 (expenditure side.) Included in the cuts were reductions in 83 major programs, including reductions in nearly every program except national defense and social security. The President promised to maintain a "safety net" under six programs including social security and basic unemployment compensation benefits.

The President also proposed a total of $188.8 billion in national defense spending during 1981, an increase of $4.4 billion over President Carter's earlier budget. National defense was scheduled to rise to $285 billion by 1984, or 32 percent of total spending, compared with only 24 percent in 1981. These spending changes would constitute a massive shift in the direction and priorities of the federal government.

The proposed Reagan budget would produce deficits of $54.5 billion in 1981, $45 billion in 1982, and a balanced budget by 1984. By 1984, budget outlays would be $771.6 billion, compared with $654.7 billion in 1981. The rate of growth in spending would be slowed substantially while revenues would be rising rapidly in response to the tax cut incentives. The President's estimates of growth in economic variables such as inflation, unemployment and total output clearly reflected the optimism of his supply-side advisers.

Few people outside the administration expected the President to be successful in obtaining Congressional approval for the tax and spending portions of his program. The tax cuts were structured to stimulate saving and hence provided large tax savings to the wealthy and to business, while the spending cuts were to come in nondefense programs. Although the Senate was controlled by the President's own Republican Party, the House was still dominated by the same Democrats who had previously passed the social welfare programs, reduced defense spending, and opposed any tax cuts that were not primarily designed for relief of low and middle income families.

The President lobbied for passage of his program on two fronts. The first was in the Congress itself, where the President and his advisers attempted to sell their supply-side theories as the way of the future. The second front was a direct appeal to taxpayers to support the President and let members of Congress know the will of the public. Such lobbying efforts paid off, and by early summer it was apparent

that the Congress would pass both a tax cut and a spending bill that closely approximated the President's proposals.

The final tax legislation was passed July 29th and provided for an astounding revenue loss to the federal government of over $700 billion over a five year period. The final spending bill authorized budget reductions of $35.1 billion in 1982 with an additional $6 billion expected to be taken from off-budget programs. The President had been successful in getting the total dollar cuts he wanted, but had been forced to make some compromises on budget details.

The 25 percent cut in income taxes is an integral part of the President's program and has a number of specific goals. The first is to provide the necessary funds for an expansion in the private sector. The second is to reduce inflationary pressure by increasing the aggregate supply of goods and services relative to the demand for those goods and services. Underlying these goals is the restoration of confidence in the ability of the private sector to solve the nation's problems without interference from government.

The success of a tax *cut* as an anti-inflationary tool depends on the ability of the Laffer curve to predict accurately the response to the cut. Traditional Keynesian policy would require a tax *increase* as the only way to reduce inflationary pressure. The difference in the two policies is a difference in the expectation of the impact of taxes on consumption and saving.

A tax cut increases the level of after-tax income for a given pre-tax level of income. This increase in disposable income can be used to increase spending on consumption, or it can be saved. A traditional Keynesian tax cut was expected to impact primarily on consumption, and increase saving only by a small percentage. A Laffer tax cut would primarily increase saving and yield only minor changes in consumption.

Keynesian policy to reduce spending (aggregate demand) would thus require a tax increase, which would lead to a decrease in disposable income, and a major part of that decrease would be translated into a decrease in consumption spending, with only a minor fall in the level of saving. A tax cut would lead to an increase in consumption and hence would expand the demand for goods and services and increase inflationary pressure. Hence the Keynesian opposition to the idea that a tax cut is likely to be an effective policy to reduce inflationary pressure.

The Laffer (supply-side) policy would emphasize a tax cut that would be translated primarily into an increase in saving rather than consumption. If saving can be expanded significantly, new funds can be provided to the market for investment funds. If the expansion in funds causes interest rates to fall, investment projects become more profitable and attractive to business and hence will also increase. Investment in new plants and equipment will increase the ability of the business sector to supply goods and services and satisfy the existing demand.

The secret to the potential success of the supply-side tax cut depends on structuring the cut to ensure an increase primarily in saving rather than in consumption. Economists have recognized for many years that saving is primarily a function of wealth. In fact, recent evidence shows that families with incomes under $15,000 generally have negative savings (spending exceeds income) while those families with incomes over $25,000 save enough to make the total value positive, and thus actually save more money every year than is made available to the financial markets as potential investment funds.

The second major link in the ability of the tax cut to succeed is the conversion of savings into investment in productive capital assets. Here the President's program seems to be built on the hope that business will respond positively to his program once funds from new saving are made available. In fact the President seemed surprised when business investment did not surge immediately after passage of the tax package. There are several possible explanations for the lack of business response.

First, the economy dipped into the recession in the early fall of 1981, just before the President's program was scheduled to take effect on October 1. Few businesses will make a decision to expand investment in new productive plants and equipment at the start of a recession, especially when it is accompanied by a major shift in economic policy that will have unknown and uncertain effects. Once the recession is over and consumption spending begins to rise, business will expand if funds are available at a reasonable price.

A second explanation is that interest rates remained high, with few prospects for an early decline. A truly acceptable explanation for the failure of interest rates to fall during the early part of the recession does not exist, but the uncertainty of monetary policy and the administration's budget problems are probably the best places to start.

Finally, as long as the monetary authorities held to the policy of slow monetary growth, the availability of new funds from money creation would be restricted. This possibility, combined with high expected deficits and government borrowing, would likely yield high interest rates. In fact, it was possible that monetary authorities would create high interest rates regardless of whether they expanded or reduced the money supply. Such was the state of apprehension and uncertainty in the financial markets as the President expected business to begin a major investment expansion.

The President also assumed that all available savings would be used for productive capital investment. Given the existing tax incentives, this assumption seems little more than a hope. Under present tax laws a number of investments are available which tend to make investment in productive capital (plants and equipment) less attractive. For example, existing real estate and vacant land have a number of tax advantages and offer the potential for appreciation and capital gains which receive further tax preferences. Speculation in commodities, antiques, and other collectables offers the same capital gains preferences that new plant and equipment receive, with the added advantage of possible faster appreciation in value. Thus, many savers in recent years have not put their savings in financial institutions, but have gone directly to the investments.

The tax programs designed to increase saving will undoubtedly have some positive effects, but no one outside the administration has projected the kind of response required to make the President's program successful. For example, the admininstration projected that the average annual increase in saving of $40 to $50 billion a year would increase to $60 billion during 1982, and to $250 billion by 1984. Even the most optimistic independent projections place the 1984 value at $90 billion, leaving a $160 billion shortfall in the administration's requirements. Saving would have to increase by more than 17 percent a year to reach the projections, and the highest levels reached during the expansion of the 1960s was only 13 percent. The administration appears to have counted on an incredible combination of fortunate circumstances to realize its stated goals.

Many critics of the president's program have pointed out that the tax cut was passed primarily on the promise that it would bring new investment and growth, and neither one has yet materialized. Business has apparently adopted a "wait and see" attitude toward the President's program. While surveys show a majority of business leaders still support the President and believe his program will work, their actions seem to indicate caution and/or pessimism about the immediate future.

Because the links between taxes, saving, and investment have not been as strong as predicted, many middle income Americans feel betrayed by the supply-side theories. They helped support a tax cut program where a majority of benefits went to the upper income groups in hopes of the promised "trickle down" benefits from investment and economic growth. Now they see the rich with even more wealth, and little evidence that "trickle down" theory works, especially during a recession.

The President's program stalled for several reasons. First, he clearly promised too much. Even if supply-side tax cuts work, critics argue that they cannot produce the rates of growth the President projected. In his enthusiasm to get his program passed, he promised more than he has been able to deliver. The danger to the President from such false hopes is that he has lost credibility and will have much greater difficulty in the future getting Congress or the public to believe his projections or his promises. For a program based on establishing confidence, this may have been a fatal flaw in the President's strategy.

A second reason for the short-run failures was beyond the President's responsibility. Tight money and the resulting recession and high interest rates prevented the optimism and the growth that the President wanted. But while the creation of the recession cannot be blamed on Reaganomics, its duration and severity are the President's responsibility.

A third reason for the program's failure is that the supply side links between taxes, saving, and investment do not seem to hold, at least in a recession. Tax cuts lead to increases in both consumption and saving, but the promised increase in savings from concentrating the tax cut on the wealthy has not materialized. In addition, the existence of new funds does not seem to be sufficient, in itself, to stimulate new investment in productive plant and equipment.

Will Reaganomics ever work? The answer depends on a great many "ifs". If interest rates continue to fall; if the Federal Reserve maintains or loosens its tight money policy; if the Congress passes additional new taxes or postpones promised cuts; if the Congress and the President reach agreement on further budget restraints; if the program works, or is even given enough time to work. But many issues have some bearing on the possible success of the President's plans.

In early August 1982 the Federal Reserve lowered its discount rate (the interest rate on funds loaned to banks) and the prime rate began to fall. Still, Chairman Volcker maintained that the policy of tight money would be retained but eased slightly. The issue of monetary policy and the resulting level of inflation and interest rates are central to any possible success for the President's program. If money stays tight and interest rates stay high, the recovery from the recession will be slow at best, and probably cannot be sustained. Yet, if the money supply begins to grow rapidly, inflationary expectations are certain to rise again and the long-term effects will be to increase both inflation and interest rates.

This issue cannot be resolved on economic arguments alone. The political and social costs of high interest rates are related to the level of unemployment. If the inflation rate would show a consistent trend downward, the Federal Reserve would be in a better position to use policy to fight unemployment and the recession. But the behavior of inflation through the fall of 1982 does not give a clear indication that inflation has been eliminated.

The President's short-term program to reduce interest rates has concentrated on lowering the size of the federal deficit, and hence the amount the government must borrow. If government borrowing can be reduced, more of the available savings and new money will be left for private borrowing and investment. This argument assumes again that the level of investment is a function of the supply of funds. It also follows from the President's preference for private sector growth and public sector restrictions.

During the 1980 campaign, candidate Reagan consistently attacked President Carter for his inability to balance the federal budget, and further argued that long-term economic stability and growth depended on a balanced budget. Yet by January 1982, the President was arguing that the size of the deficit was not important if it was created by tax cuts rather than increasing expenditures. But within a few months the President had proposed a $98 billion three-year tax increase to help reduce the rapidly escalating deficit.

The federal government is expected to borrow at least $90 billion during the last half of 1982. This is expected to help the government account for over 55 percent of all private borrowing during the year. This is compared to an average share of only 17 percent in the 1960s and 25 percent in the 1970s. Further, the government share is expected to remain at or above the 50 percent level for the next two to three years. This level of borrowing will almost certainly crowd out of the credit markets small businesses and those private borrowers with low credit ratings. If so, the president's goal

of stimulating investment by private business will be destroyed before it can even begin to succeed. Hence, the President's concern for reducing the deficit and the amount of government spending.

A second issue related to the budget concerns the process of bringing the budget under control—through tax increases or spending cuts. The much publicized cuts in government spending have been uneven at best. For example, during the first half of 1982, spending increased by $30 billion, with six program areas that account for two-thirds of the budget rising by 21.5 percent.

Neither the President nor Congress has been willing to propose sufficient spending cuts to have the required impact, but both seem willing to increase taxes to make some effort at budget balancing. Unfortunately, most economists and political observers believe that an increase in taxes is, at best, a temporary patch rather than a permanent solution. A real budget solution will require control of federal spending — primarily the entitlement programs.

The entitlement programs represent a majority of what are often called "uncontrollable" expenditures. Entitlement programs are social security and railroad retirement, federal employee's retirement, unemployment compensation assistance, medicare and medicaid. They are programs where citizens become "entitled" to receive benefits because of past taxes, health, age, prior work, etc. Congress generally establishes a benefit schedule and then the amount actually spent depends on the number of people who apply for and collect those benefits.

The only major expenditure category projected to increase substantially over the long-run in the President's budget is national defense. The President originally requested an increase in the defense budget of 17.5 percent per year from 1981 to 1987, a growth in real (inflation adjusted) terms of over 10 percent a year. Spending would be $183 billion in 1982, $247 billion in 1984, and $355 billion by 1987.

This is one area where President Reagan has steadfastly refused to negotiate. He apparently believes that defense has been a neglected area for too long and only an increase in these expenditures will restore America to its rightful position as the free-world leader. It is unlikely the Congress will continue to increase appropriations for defense at a rapid rate while cutting other programs severely. At some point the President will be forced to compromise on defense or lose the cooperation of Congress in reducing other programs.

It is also unlikely that the President will be able to reduce substantially the size of the deficit through a tax increase and cuts in social programs if he continues to demand such a large expansion in the defense budget. Regardless of his political preferences, it seems obvious that the President must reduce his budget requests for defense or risk failure of his entire budget program.

While the President's program has failed to produce the promised short-run benefits, an important issue is the ability to produce the *long-run* stability and growth it also promised. The President was clearly too optimistic in his enthusiasm for the benefits of his supply-side programs. But the program could not have produced all of the President's promised benefits in the first year. Supply-side policies were never intended to be able to produce a stable economy in such a short period. The economy of 1980 had taken almost 20 years to create. It was unreasonable to expect a complete change in one year. Yet the President's program is perceived by many to have made the major problems worse rather than better.

One of the most critical problems is unemployment. At the time of the November 1982 elections, over 11 million Americans were unemployed. The 10.4 percent unemployment rate was the highest since the 1930s and was three percentage points higher than when Reagan took office in 1981. This statistic alone has caused many critics to label the President's experiment with supply-side policies a miserable failure. It is an issue that will demand an increasing amount of the President's time during the remainder of his term. The unemployment rate is unlikely to fall rapidly, regardless of public policy, since most projections indicate a slow recovery form the recession.

During the 1982 election campaign, the President repeatedly asked voters to elect Republicans to Congress who would support his program. The President asked for additional time, arguing that a return to the policies of the past would bring renewed inflation and even greater economic problems. His plea was to "Stay the Course". His economic recovery program had set the nation on the course to recovery—it simply needed more time to succeed.

The November 1982 election was not a resounding repudiation of Reaganomics, although the President and the Republicans lost 26 House seats to the Democrats. The election was a mixed bag, since some Reagan supporters won and some were defeated, and many Republicans who won attempted to separate themselves from a hardline stand in support of the President's policies. While both parties claimed victory, it is clear that the President will not have the same level of support in the new Congress that he has had in the past.

While detractors of Reaganomics have already labeled it an unqualified failure, supporters argue that the major parts of supply-side theory were never really implemented, or have not been given adequate time to reach their objectives. In either case, the impact of the Reaganomics experiment in public policy has been great—and a new Congress will now decide whether or not to Stay the Course.

Natural Gas in Transition

*by Albin J. Dahl**

Like field price deregulation of natural gas, the penetration of a new found understanding of gas markets is only partial and phased.[1] The author argues that partial deregulation distorts the allocation of economic resources specializing in exploration for natural gas. Capital is attracted to development of high-cost sources of gas rather than low-cost sources. The dilemma of the weakened competitive position of gas in the marketplace is discussed, leading to the conclusion that wellhead price controls should be abandoned.

Regulation of the price of natural gas at the producers' wellhead by a cost of service standard has been debated, sometimes acrimoniously, since the 1950s. The rationale for deregulation of the wellhead price of *new* natural gas is that there is a direct relationship between the market equilibrium price of gas and the feasibility of tapping marginal alternatives (high cost) sources of gas and developing substitutes (synthetic gas). The federal government subsidizes high cost synfuels.

There is also a rationale for deregulation of *old* natural gas: producers should not be forced to sell gas at a price as low as 23¢ Mcf (thousand cubic feet) when its current market value is in the range of $2.00 to $2.50 Mcf. Consequently interstate gas transmission pipeline companies having long-term contracts to buy large volumes of low-cost gas have a competitive advantage over less-fortunate counterparts which buy largely new gas at much higher prices. The resulting incongruous market situations and distortions are explained below. There is the additional observation that producers of old gas are deprived of revenue needed for exploratory drilling for new hydrocarbon deposits and/or for extension of existing fields.

Prior to the Natural Gas Policy Act of 1978 (NGPA) gas discovered after January 1, 1975, or sold for the first time in interstate commerce after that date was designated "new," and "old" referred to gas discovered or transmitted to interstate markets prior to that year. The NGPA established a cumbersome schedule of prices of gas by category and vintage.

The position of lawmakers and consumers' groups who opposed (and continue to oppose) deregulation of the price of new and/or old natural gas is that relaxing or abolishing price constraints would do little more than add to "cost-push" inflationary pressures. Unfortunately, passions still run very high on both sides of the price deregulation issue.[2] Milton Friedman once wrote that it is easier for man [politicians and bureaucrats?] to rationalize than to *reason*. The fact is that by the late 1960s it was already clear that the supply of natural gas would be insufficient to satisfy the strong and growing demand for it at the artificially low wellhead price set for gas by the Federal Power Commission (FPC) pursuant to the provisions of the Natural Gas Act of 1938 as interpreted by the U.S. Supreme Court in *Phillips Petroleum Company v. Wisconsin* (1954)[3] The Natural Gas Act of 1938 is applicable only to gas transmitted or sold in interstate commerce for resale. The beginning of a spread between the unregulated wellhead prices of gas sold *intrastate* and the regulated prices of gas for transmission to interstate markets was observed after 1966. In the 1970s interstate gas transmission companies were at a distinct disadvantage in negotiating for new supplies of gas to serve the rapidly expanding demand in northern states at the artificially low regulated prices. Until the NGPA of 1978 extended federal regulations to wellhead prices of gas sold intrastate, producers preferred to sell intrastate at a price substantially higher than the regulated interstate price. In 1974 the regulated price for natural gas at wellheads was 26¢ Mcf, compared to approximately $1.00 Mcf for gas sold in the unregulated intrastate market. Southern politicians observed that federal price regulations favored the North at the expense of the South, for production of natural gas is highly concentrated in Texas, Louisiana, and Oklahoma, while the principal markets are in the more highly industrialized northern states where consumers benefit from the federal price controls, at least in the *short-run*.

The *North v. South* aspect of the gas pricing controversy was illustrated in 1973, when "Governor Edwin Edwards [of Louisiana] announced that a large natural gas field had been discovered in Plaquemines Parish, southern Louisiana. It contained enough gas to fill all of New Orlean's energy needs for fifty years. The . . . only pipeline near the field went . . . to Washington, D.C. and New York. The governor announced that the field would not . . . be developed until it could be reached by an *intrastate* pipeline."[4] Why sell gas for transmission to northern states at a price representing

**Albin J. Dahl is Professor of Economics and Editor of the Nevada Review of Business & Economics, Bureau of Business and Economic Research, College of Business Administration, University of Nevada, Reno.*

only a small fraction of its market value?

"The way many residents of Texas, Oklahoma and Louisiana saw it . . . almost anyone [in those states] who read the newspapers, the people . . . in New York, Washington, and Boston were reluctant to look for oil and gas . . . especially offshore, because to do so might spoil their view or pollute the beach or make the air dusty. The northerners were perceived as saying to the South: 'You go on drilling up your bayous or swamps or whatever it is you have down there, and go on sending us the [natural gas] at one-eighth of its true value.'"[5] Finally, bumpers of some motor vehicles in southern states sported stickers suggesting that Yankees should "Freeze in the Dark."[6]

Southern states, of course, do not supply all the natural gas. There is a secondary domestic source in the Mountain states of Colorado, Wyoming and Montana. But these and contiguous states supply other western states.

Prior to the NGPA of 1978, the growing spread between the interstate and intrastate wellhead prices of gas led sporadically to "economic withholding" of supplies which otherwise would have been offered for sale to interstate pipeline companies. Long-run intrastate demand of Texas, Louisiana and Oklahoma is not large enough to consume the potential supply of new gas without depressing the price. Therefore, producers have sometimes chosen the lawful option of retaining proved reserves of gas indefinitely. But if producers of gas have agreed to supply a specified volume of gas over the life of a long-term contract, it is unlawful for them to withhold supplies by capping in wells or even by failure to extend gas fields to supply the volume promised at the contract price.

Before the NGPA, oil and gas producers had no incentive to drill for new deposits of hydrocarbons of gas potential or to enlarge existing gas fields, for federal regulations held wellhead prices far below the equilibrium level (measured by the market value of the gas). But new supplies of gas were being acquired by intrastate pipeline companies at rising unregulated wellhead prices in the major gas exporting states, viz., Texas, Louisiana, Oklahoma and contiguous states. By 1975, opportunities for buying gas even for intrastate markets in the above mentioned states had diminished. Producers apparently were unwilling to run the risk of drilling for gas without assurance in advance that there would be an intrastate buyer willing to pay the unregulated price for the increased supply. Fear that the potential new supply would have to be sold at the federal interstate ceiling price was a deterrent to exploratory drilling.

But by 1977, strong demand for gas in Texas for consumption intrastate at a price substantially higher than $2.00 Mcf encouraged production of such a large volume of new gas that by the close of that year the intrastate price began to decline. Closing the gap between the two prices (interstate and intrastate) seemed imminent as producers competed among themselves for long-term contracts to supply gas for transmission and sale within Texas. The intrastate price in Texas fell below $2.00 Mcf, giving credence to the hypothesis that with fewer regulations and without ceiling prices, the market would be "awash" with natural gas.[7]

A decline in the price of natural gas in Texas or anywhere else in the United States late in 1977 or early 1978 was embarrassing to gas producers. These were the critical years during which Congress was doing the "spadework" that culminated in the NGPA of 1978. Apprehensive gas producers wondered if Congress would be persuaded by a declining price of natural gas in Texas to provide for ceiling *interstate* and *intrastate* prices lower than those already contemplated. The misgivings were dissipated when the Texas Railroad Commission ordered a restriction of production of natural gas in the state and the intrastate price was stabilized at $1.95 Mcf.

Regulating Demand

In 1969 sporadic occurrences of short supplies of natural gas for transmission to interstate markets were observed. According to Parkinson's Law, first cousin of the most familiar of Murphy's Laws, bureaucracy will never stop growing. Therefore, from 1969 to 1978 an expanding bureaucracy attempted to minimize what it perceived to be a problem of a diminishing supply of a nonrenewable natural resource (gas) by regulating demand. The problem of a short supply of gas for sale interstate was caused by myopic price regulation which was the essence of the problem. Producers lacked price incentive to explore for gas for sale at federally regulated prices and apparently some proven reserves were being held in anticipation of higher wellhead prices in the future.

Regulation of demand was implemented when the FPC established priority rankings for natural gas uses and provided for curtailment of service to low priority users. The frequency and duration of gas service curtailments to the lowest priority end use, i.e., as industrial boiler fuel, increased from 1969 and reached a peak during the severe winter of 1976-77 when 14 of 42 major interstate transmission pipelines experienced gas supply shortfalls of about 20 percent. In many states public service commissions imposed moratoria on new gas hookups, even for residential uses. Moratoria remained in effect in various jurisdictions until 1979. New England, northeast and north central states were especially hard hit by the adversities. There were intermittent closings of industrial plants due to curtailment of gas for boiler fuel.

In recognition of the interstate gas supply shortfalls of the winter of 1976-77, widespread imposition of moratoria on new gas hookups, and the substantial spread between the wellhead price of gas for sale intrastate and that destined for interstate transmission, Congress was finally persuaded that a measure of remedial legislation was needed. The result was compromise legislation, the Natural Gas Policy Act of 1978, which in providing for partial and phased deregulation of the wellhead price of gas, conceded something to advocates of deregulation and also to those who argued for continued regulation at the wellhead on behalf of residential customers.

The Natural Gas Policy Act (NGPA)

The NGPA provides for maximum prices per million

BTU above the regulated level prevailing at the time of its enactment. These prices are specified for the various categories of gas, along with a time frame for deregulation, except that "old" gas (Sec. 104), gas from the (offshore) Continental Shelf (Sec. 102), gas from stripper wells (Sec. 108) and from Prudhoe Bay of Alaska (Sec. 109) are not to be deregulated. "Old" gas is production from wells commenced prior to 1977 (the more recent the well commencement date, the higher the price). The act decontrolled, as of 1980, wellhead prices of high cost (Sec. 107) gas defined as (1) gas from below 15,000 feet, e.g., in overthrust regions, if produced from wells drilled after February, 1977; and (2) gas from geopressurized brine, coal seams, and shale. The Federal Energy Regulatory Commission (FERC) interprets and enforces the provisions of the NGPA. Table 1 summarizes prices by categories and indicates the deregulation time-frame. The spread between prices of gas for sale intrastate and that for transmission in interstate commerce was

TABLE 1

SUMMARY OF PRICES PROVIDED FOR BY NGPA BY CATEGORY: INTERSTATE AND INTRASTATE

Section of NGPA		Price per Million BTUs	Date of Deregulation
	The NGPA establishes a maximum ceiling price for each of the following categories of:		
102	New Natural Gas, sold interstate from: — new Outer Continental Shelf — new onshore wells — new onshore reservoirs — reservoirs discovered after 7/27/76 or pre-4/20/77 offshore Continental Shelf	$1.75 + inflation[1] and escalation[2] ($2.07)[3]	— 1/1/85 — not to be deregulated
103	Gas from New Onshore Production Wells, sold interstate	$1.75 + inflation ($1.97)[3]	— 1/1/85 to 7/1/87
104	Gas dedicated to Interstate Commerce before the Date of Enactment (e.g., from wells commenced from 1/1/75 to 2/18/77).	Range: 33¢ to $1.63[3] (The more recent the well commencement date, the higher the price)	— not to be deregulated
105	Gas sold Intrastate under contract in effect as of 11/8/78	Contract Price[4] (averaged $1.90 in 2nd quarter of 1978) — if contract price is less than Section 102 price it may escalate, as called for by contract, up to Section 102 price — if contract exceeds Section 102 price then contract price plus annual inflation factor or Section 102 price plus escalation applies, whichever is higher	— 1/1/85 — if unescalated contract price exceeds $1.00 by 12/31/84 — if lower, not deregulated
106	Gas Sold under Renegotiated Interstate Contract	$.54 or other applicable FERC price + inflation ($.61)[3]	— not deregulated
	Gas Sold under Renegotiated Intrastate Contract	the higher of expired contract price or $1.00 + inflation ($1.13)[3]	— 1/1/85 if more than $1.00
107	High Cost Gas: (1) from below 15,000 feet from wells drilled after 2/19/77. (2) from geopressurized brine,[5] coal seams, shale	$1.75 + inflation + escalation [2] ($2.07)[3] FERC may establish an incentive rate above level provided for in Section 102	— 1980
108	Gas from Stripper Wells, i.e., low volume producers	$2.09 + inflation and escalation[2] ($2.21)[3]	— not to be deregulated
109	Gas from Prudhoe Bay Area of Alaska	$1.45 or other "just & reasonable rate" to be set by FERC + inflation ($1.63)[3]	— not to be deregulated

NOTES

1. The adjustment for inflation is explained in the text.
2. An extra allowance ("escalation") for inflation is provided for, equal to an annual rate of 3.5 percent until April, 1981, and subsequently at 4 percent. The extra allowance is in addition to the adjustment explained in the text.
3. The approximate ceiling price as of October, 1978, adjusted for inflation and "escalation" (see Note 2).
4. The average price reported to FERC for intrastate gas sales contracted for during the second quarter of 1978 was approximately $1.90 BTU.
5. The Energy Tax Act provides that production of geopressurized natural gas shall be entitled to a 10 percent depletion allowance.

Source: Adapted from a similar summary in "The National Energy Act," Department of Energy, Office of Public Affairs, Washington, D.C.

eliminated by extending federal regulation to producers' prices of intrastate gas. Therefore, gas for sale intrastate is now subject to the same price controls as interstate gas. Elimination of the disparity between prices of intrastate and interstate gas and higher prices led to a substantial increase of gas offered for sale interstate. As a result, by 1981 moratoria on new gas hookups were abolished and gas was available even for low value boiler fuel use. Actually, there was a surplus of gas relative to demand in virtually every regional market of the United States as early as 1980. At that time the surplus (dubbed the "gas bubble") was believed to be merely a passing phenomenon that would soon disappear when growth of demand would take up the slack. In 1979 statistics on increasing numbers of residential oil-to-gas conversions and rising sales of gas-fired boilers gave credence to this view. However, the expectation that the "bubble" would disappear has not materialized.

Approximately 70 percent of current gas production is subject to wellhead price controls. About one-third of this 70 percent is scheduled for deregulation as provided for in the NGPA at the beginning of 1985.

The Act provides that the November, 1978, price of old gas shall be its base price. All base prices established by the legislation are to be adjusted for inflation by the GNP Implicit Price Deflator published by the Department of Commerce for each calendar quarter. However, in addition to the adjustment for inflation, the price of *new* gas is adjusted for changes in the price of crude oil.

The price of natural gas could not be held below the equilbrium level indefinitely, given the production disincentives associated with unrealistic price controls. Therefore, after the NGPA was passed providing for higher wellhead prices, the price of natural gas in residential end use increased by 34 percent in 1980, followed by a 15 percent increase in 1981 and 14 percent in 1982. These percentage increases are national averages. In March, 1982, the average price of natural gas in residential use was $5.21 Mcf, representing wellhead prices of $2.40 Mcf (paid to producers) and pipeline transmission and distribution costs of $2.81 Mcf.[8]

When the NGPA was written, it was assumed that the price of crude oil would be only $15 per barrel (bbl.) in 1985. Therefore, the scheduled increases in the wellhead prices of new gas will result in prices for new gas in 1985 equal to the Btu equivalent of $15 bbl. crude oil, which is a wellhead price for gas of $2.70 per million Btu (MMBtu).[9]

It is anticipated that by 1985, new "conventional" natural gas (Sec. 7 gas is "unconventional") will supply nearly 50 percent of the U.S. demand for gas. Assuming no amendments to the NGPA and also assuming that the price of crude oil will approximate its current average price of $33 bbl. when price controls are removed in 1985, and further *assuming no competition from residual oil,* the average wellhead price of new conventional gas will rise abruptly to about $5.80 MM Btu (or $5.50 Mcf).[10] As we have seen, the national average wellhead price of gas was $2.40 Mcf in 1982. But because controls will remain on old gas, the average price of new conventional gas would be below $5.50 Mcf in 1985, e.g., $4.25 Mcf when deregulation occurs.

On a Btu basis the 1982 price of furnace oil in residential use was one-third above that of gas. If the wellhead price of gas were to rise in 1985 as calculated, and assuming no serious supply shortfalls in refined products of crude oil, the price of gas for residential space heating would approximate that of furnace oil.

But residual oil does compete with gas for use as non-residential boiler fuel. The newfound understanding of gas markets is that residual oil at $23 bbl. closes gas out of the market for industrial and power plant boiler fuel.[11] To compete with $23 bbl. oil, gas must be priced in the range of $2.80 Mcf to $3.20 Mcf at the wellhead. Boiler fuel, the marginal use of gas, establishes a ceiling price for gas; i.e., no pipeline company need pay a price for gas in excess of that established for its marginal use. It is notable that the effective ceiling of $23 bbl. for residual oil for use as boiler fuel, is only moderately above the $15 bbl. for oil assumed by Congress when the NGPA was written. However, it is probable that after 1985 supplies of gas and oil will tighten, causing rising energy prices generally. Long-run price controls should never be imposed on commodities for which supply shortfalls may recur because price controls dampen incentive to increase long-run supplies.

As of 1985 at least 40 percent of the U.S. domestic gas supply will be "old," on which price controls are scheduled to continue according to the NGPA, based on the 1978 wellhead prices for old gas, plus adjustments only for inflation. Production of gas from old wells will decline gradually due to depletion after 1990, but old gas is expected to contribute a significant percentage of the total gas supply through the decade of the 1990s.

In addition to competition from residual oil, old gas to be sold at prices far below its true market value will serve as a restraint on the average price of natural gas when new gas is decontrolled in 1985. However, as explained below, partial decontrol has led to a new price disparity which will continue after 1985 unless the NGPA is repealed or amended.

Contracts to Buy High Cost Gas

From 1978 to 1981, interstate pipeline companies sought and obtained contracts to buy Sec. 107 gas at sharply rising prices because the high cost gas could be averaged (rolled in) with price-controlled low cost gas, (especially old gas) yielding a competitive market price for gas, i.e., below the price of residual oil per Btu. Understandably, managment of gas transmission companies was still affected by a short-supply psychosis and Sec. 107 gas (below 15,000 feet) generally is from very large hydrocarbon reservoirs. Management contracted for supplies of high priced gas of the following categories: Sec. 7 gas, imports from Canada and Mexico, and liquefied natural gas (LNG) to be imported from Algeria. Gas pipeline companies were offering to pay a high price for market security.

But by early summer of 1982, the price of residual oil, which competes with natural gas for use as boiler fuel, had declined substantially. Purchase of Sec. 107 gas at prices ranging from $6 Mcf to $10 Mcf no longer was feasible. Gas

in this price range provides the Btu equivalent of oil priced from $36 to $58 per barrel.

Michigan Wisconsin Pipe Line Company and Transco, gas transmission companies serving the East Coast and the Midwest, acknowledged in May, 1982, that the Sec. 107 gas they had been buying at a price ranging as high as $10 Mcf could no longer be sold. "They told producers that for the foreseeable future, neither [company] would pay more than $5 to $6 per Mcf for [the Sec. 107 gas]. Sonat Inc. made a similar [decision] a month later."[12]

"Take or Pay" Contracts

The natural gas shortfall psychosis of the 1970s led many pipeline companies to accept "take or pay" clauses in long-term contracts with gas producers who bargained with overwhelming strength. This type of clause becomes effective if the volume of the producers' gas falls below a specified level. The clause requires the pipeline company to pay for a certain volume of gas annually. Even if the pipeline has no market for additional gas and cannot feed it into its storage reservoirs, the company must pay for it anyhow, according to the terms of the contract. After "take or pay" contracts had been accepted by pipeline companies, the supply-demand situation turned around completely and pipelines have cut purchases to the "take or pay" minimum volume, below which they would have to pay for *phantom* gas.

The rationale of the "take or pay" clause, from the producers' point of view, is that the pipeline companies should guarantee that gas producers will have a minimum cash flow. The trade off is that providing this guarantee gives pipeline companies the right to be supplied from the producers' gas reserves.

Much of the "take or pay" gas (like Sec. 107 gas) is priced substantially above gas offered for sale by potential alternative suppliers, given the current gas surplus. Management of gas transmission pipelines explains that prices specified in long-term contracts with gas producers must be paid even if (in the short-run) lower-priced gas is available. "The pipelines call such business decisions creatures of contract obligations; critics call them monopoly price gauging . . . The pipelines are coming under . . . pressure to explain to [end users of gas] why they are paying more when they could pay less."[13] Reserves of low-cost gas (some of which belongs to small oil and gas producing companies) are being shut in because pipelines are not buying. In some instances low cost gas has been flared or released into the atmosphere.

"A coalition of Congressmen from the Northeast and Midwest [has] urged regulators to exercise 'stricter oversight' of contracts to be sure prices are 'prudent and reasonable.' The group asked [FERC] to seek every available means to 'force pipelines to renegotiate take or pay contracts. Commission Chairman Butler told the group only Congress [has] the authority to force such renegotiation."[14]

But it is also true that the realities of surplus gas in the marketplace will force renegotiation of "take or pay" contracts. For example, "Transco maintains that many of its take or pay contracts are unenforceable and [the company] is making producers take legal action to prove otherwise. Meanwhile, it is paying only for the gas it takes . . . Within a few years, the most fashionable slogan in the gas industry may be 'I can't take, and I won't pay, so sue me.'"[15]

"There is a nagging feeling that [the gas surplus] may never [sic] go away," says Joel F. Zipp, a Washington attorney representing several pipeline companies. "[But] because of terms included in many gas contracts for the past 15 years, a number of pipelines now are being [asked] to pay for gas . . . they have contracted to buy from producers but . . . cannot [sell to power plants or industry for use as boiler fuel]."[16] Beleaguered operators of transmission pipelines are likely to tell their gas suppliers that they can neither take nor pay for gas they cannot sell to end users. When this happens, gas producers would be well-advised not to sue, for the price of gas in the real world will be determined by the price of residual oil and not by provisions written into gas supply contracts. Disputes of the kind described should be settled by negotiations between pipeline companies and gas producers, refereed by regulatory agencies, rather than in drawn-out litigation in courts of law.

Dilemma of Competition from Oil and Coal

Wellhead producers are remote from end use consumers of gas. Operators of gas distribution pipelines and local gas and electric utility companies are first to feel the effects of the competitive constraints of the marketplace. "Price signals" are then received by operators of gas transmission pipelines who inform producers that there is a surplus of gas relative to demand at current quoted prices. In spite of increasing severity of competitive constraints in the end user gas market, producers have continued the tradition of including price acceleration and "take or pay" provisions in long-term gas supply contracts negotiated with transmission pipeline companies. But after a time lag, which would be *shortened* by immediate decontrol of all categories of gas, high cost gas will be backed out of the market because pipelines cannot pay more for gas than the equivalent Btu price of residual oil. The marginal use of gas, as boiler fuel in competition with residual oil and coal, will determine the Btu price of gas.

The alleged "new" competition in the gas industry antedates the NGPA of 1978. Curtailments of gas service for low priority uses (industrial and power plant boiler fuel) from the mid 1970s led management in manufacturing and in the electric utility industry to build boilers with dual fuel-burning capacity and to retrofit existing boilers to burn either gas or oil. Moreover, there is an increasing trend toward coal as the fuel for boilers currently being built. Public utility commissions in some states discriminated against boiler fuel users of gas in determining gas rate structure. In this way, commissions forced the conservation of gas and channeled it to high priority residential and commercial uses. (As we have already seen, prior to the passage of the NGPA, there was a shortfall in the supply of interstate gas.) Therefore many industrial boilers and power plants were switched from gas to oil or coal and left the lines of the gas distribution pipeline companies: (a) residual oil was priced lower than gas per Btu (according to the regu-

lated gas rate schedule) and (2) adequacy of the supply of oil for boiler fuel was seldom doubted. In contrast to natural gas, in the oil industry supply shortfalls impacted motorists who had to wait hours in long lines at gasoline pumps.

Competition in the supply of boiler fuel intensified after the enactment of the NGPA because of an increase in the price of gas and a decrease in the price of residual oil, especially sharp during 1982. Consequently the competitive position of gas has weakened considerably.

The incremental pricing provision of the NGPA applicable to large volume boiler fuel uses of gas is highly discriminatory and has induced industrial users to leave the gas supply system and burn residual oil or coal.[17] One of the objectives of incremental pricing was to encourage switching from gas to coal or oil for uses as high volume boiler fuel. This objective has been achieved. The other objective of the provision, viz., to minimize the impact of rising wellhead prices of gas on residential use of gas, was rooted in faulty reasoning and therefore has not been achieved.

The Power Plant and Industrial Fuel Use Act of 1978 (PIFUA), providing for compulsory reductions in power plant and industrial uses of both oil and gas, has accelerated the switch from gas to coal.[18] The act denies public utility companies permission to burn either oil or gas as boiler fuel in *new base load* power plants of size greater than 10 megawatts. A ban on use of gas as boiler fuel in all power plants, which was to become effective in 1990, was repealed by Congress in 1981. The PIFUA also prohibits construction of new boilers for industrial use designed to burn oil or gas if their fuel heat input is 100 million Btu per hour or greater. The purpose of the PIFUA, like incremental pricing, is to discourage or prohibit low value boiler fuel use of natural gas, thus conserving it for high value residential and commercial cooking and heating uses.

When users of large volumes of industrial and power plant boiler fuel switch from gas to residual oil or coal, the natural gas pipelines lose their high volume, high load factor customers. Demands of residential and small volume commercial customers is very inelastic because customers of these categories cannot burn high sulphur residual oil or coal. But because large industrial and power plant customers leave the gas supply system, there is a smaller number of users over which to spread fixed costs, i.e., the customer or capacity charge for gas service rises sharply. Fixed costs per customer also rise because residential and small commercial users of gas are characterized by low load factors and a highly seasonal demand for space heating.

Summary

A decline in the price of residual oil, a favorable Btu price of coal, the incremental pricing provision of the NGPA, restrictions on boiler fuel use of gas provided for in the PIFUA, and rising prices of natural gas permitted by FERC in administering the NGPA, have combined to weaken the competitive position of gas in the industrial and power plant boiler fuel market. Therefore wellhead price controls on natural gas no longer make economic sense.

In 1981 industry and power plants of regulated public utilities burned about 60 percent of the natural gas consumed in the United States, the equivalent of about six million barrels of oil per day. The consequence of loss of a major share of this market will be long-run underutilization of public utility gas systems and rising capacity charges to customers who remain consumers of gas. Fuel switching may reduce the size of the gas market to the point where a high value domestic fuel will not be fully developed until spurred by another energy crisis.

The New Price Disparity

As we have seen, when the NGPA extended federal jurisdiction to producers' prices of intrastate gas, the debilitating disparity between the prices of interstate and intrastate gas disappeared. But the NGPA unwittingly has given rise to a different kind of price disparity. The price of gas produced from deep wells (Sec. 107 gas) drilled after February, 1977, was deregulated in 1980. Partial deregulation has encouraged the production of *high cost* gas, ironically at a time when demand for gas for residential uses is flat and in many other uses the demand for gas is sharply lower due largely to shifts to *lower priced* residual oil or coal and the current economic recession.

Because wellhead price controls began in the 1950s, every major interstate transmission pipeline company buys a substantial percentage of its gas supply requirements at controlled prices (far below market value) in the range of 25¢ Mcf to 90¢ Mcf. But these companies have unequal shares of low priced old gas; i.e., old gas as a percentage of total gas supply requirements varies considerably among interstate gas transmission companies. For example, 79% of the purchased gas supply requirements of Texas Eastern Transmission Company is old gas sold by producers at an average (regulated) price of 86¢ Mcf. The comparable percentage of old low cost gas to total purchased gas is 71% for Tennessee Gas Transmission Company. Transco is at a competitive disadvantage, with old gas comprising only 43% of its volume of purchased gas.[19] This helps to explain Transco's statement (noted above) that it cannot pay more than $5 or $6 per Mcf for Sec. 107 gas.

Companies such as United Energy Resources, Columbia Gas and Consolidated Natural Gas produce gas and also transmit and distribute large volumes of gas purchased from major interstate transmission companies. The average cost of gas sold by companies of this category depends largely on the volume of old price-controlled gas purchased from other pipelines. Speedy and complete deregulation of all gas wellhead prices would accelerate a move to a more equal footing of all gas transmission and distribution companies with regard to the cost of purchased gas. Apparently producers of large volumes of Sec. 107 gas would find it in their interest to oppose full price deregulation because it would encourage producers of lower cost gas to expand supply. The position of Sec. 107 gas in the marketplace would be even more precarious than it is at present.

As we have seen, prior to the NGPA intrastate pipeline companies (e.g., in Texas and Louisiana) contracted for supplies of gas at unregulated wellhead prices. Consequently

they now have extremely limited supplies of old, low-priced gas and are at a competitive disadvantage compared to interstate transmission pipelines having long-term contracts to buy large volumes of gas at low regulated wellhead prices. The intrastate vs. interstate pipeline comparison is partly academic because each sells in geographically separated markets. Moreover the price disadvantage of intrastate pipelines in buying at the wellhead is partly offset by the short distances and therefore low transportation charges per Btu of gas distributed to end users within a state's boundaries. But the problem is that interstate gas transmission pipelines having a cushion of low-cost gas are able to outbid the intrastate companies (having little or no sources of old gas) for supplies of high cost Sec. 107 gas and for supplies of new gas which is rising in price. Producers of categories of gas which remain under price control may mark time waiting for deregulation in January, 1985. According to *Business Week,* 15 percent of U.S. gas supplies are now shut in.[20] The result could be a supply shortfall for some intrastate pipeline companies (given the NGPA) having its heaviest impact in the major gas producing states of Texas and Louisiana.[21]

In brief, there are indications that low-cost gas is being withheld from the market because of the NGPA disincentives, i.e., pricing "easy to find" gas below its true market value. Moreover, the 1978 gas legislation is the *magnum opus* of bureaucracy. A proliferation of rules and definitions discourages initiative by providing the basis for lawsuits if a gas producer unwittingly violates a complicated rule. The act is composed of 62 pages of fine print providing for 64 categories of gas. For example, category 6 gas is from new onshore production wells deeper than 5,000 feet. "It is gas from new wells in an old reservoir within 2½ miles of an old well provided that the new well is outside an existing proration unit (applied to a well begun 2/19/77 and thereafter capable of commercial production."[22]

Producers have no incentive to undercut a regulated price. Therefore, eventually prices are higher than they would be without regulations.

The Controversy over Imports of Liquefied Natural Gas (LNG) from Algeria

LNG from Algeria seems to be priced out of the market at the present time and illustrates a misallocation of economic resources.

Panhandle Eastern Pipeline Company is an interstate natural gas transmission company supplying midwestern gas distributors, e.g., Michigan Consolidated Gas, Consumers Power Company (Michigan), Laclede Gas of St. Louis. As we have seen, natural gas supply shortfalls which reached a climax during the winter of 1976-1977 were exacerbated by disincentives of gas wellhead price controls administered by the Federal Power Commission. In 1977, the fear of natural gas shortages induced Panhandle to apply to the Economic Regulatory Administration, an agency of the Department of Energy, for a license to negotiate a contract to import LNG from Algeria. According to management of Panhandle, ". . . its customers were alarmed by severe domestic gas shortage [in 1977] and 'virtually all' of them expressed 'strong support' for adding the company's liquefied natural gas to their supplies."[23] The license to import LNG from Algeria was granted.

The contract Panhandle negotiated with Sonatrach, the Algerian national oil and gas company, provides that Panhandle shall import 3.3 trillion cubic feet (Tcf) of LNG from Algeria over 20 years. The contract was implemented in October, 1982, when the company imported one-twelfth of its annual volume of 165 billion cubic feet (Bcf). Trunkline LNG Company, subsidiary of Panhandle, has invested $649 million in a LNG terminal, storage and regasification plant near Lake Charles, Louisiana, and in two tankers to transport the cryogenic cargoes from Algeria to the Lake Charles facilities.

The Sonatrach export price for LNG is $3.92 Mcf at point of shipment, Arzero, Algeria. After allowing for the cost of transportation and regasification at the Trunkline facility near Lake Charles, the wholesale price of the imported LNG is $7.13 Mcf. FERC approved this price in 1977, but that was a year of substantial gas supply shortfalls in the United States, caused largely by unrealistic price controls of gas at wellheads.

The price escalation formula accepted by Panhandle in August, 1982, provides for quarterly adjustments of the price of LNG based on changes in the average export prices of five different foreign crude oils. This formula, if approved by FERC and by the Algerian government, would adjust the price of LNG by 17¢ per MM Btu for each $1.00 change in the average price of the controlling crude oils.[24] The problem is that $7.13 Mcf, the wholesale price of LNG imported from Algeria, transported to Lake Charles, is 40 percent more than the $4.94 paid by transmission pipeline companies for natural gas from Canada and Mexico.

As we have already seen, above $6 Mcf Sec. 7 gas is priced out of the market. Therefore, the Panhandle LNG price of $7.13 Mcf and the escalation clause have become very controversial. Industrial use of natural gas continues to decline because of shifts to alternative fuels and the impact of economic depression. Therefore, apparently most of the Trunkline's wholesale customers can find surplus gas for sale at prices far below the Panhandle price for the import from Algeria. FERC has already permitted increases in the wellhead prices of natural gas pursuant to the NGPA and "rolling in" Panhandle's Algerian imports at $7.13 Mcf would add at least 10 percent to the distributors' selling prices.[25] Therefore, "the state of Michigan, 15 Midwestern gas utilities, 28 of Michigan's largest industrial companies, and five Republican members of Congress have submitted an unprecedented filing [with the regulatory agencies]."[26] The petitioners seek to have Panhandle's license to import LNG from Algeria rescinded. This, of course, would void the agreements of Trunkline's customers to buy the imported LNG. FERC has asked Panhandle to justify the price of $7.13 Mcf, which the predecessor agency, the FPC, approved in 1977.[27] FERC and the Economic Regulatory Administration have agreed to hold joint hearings to resolve the issue by January, 1983.

The Panhandle $1 billion project[28] to import LNG from Algeria was approved during a gas supply shortfall crisis. But now, apparently for the years 1983 and 1984, most of Trunkline's customers can find adequate domestic supplies of gas at a wellhead price about half that of the Panhandle Algerian LNG import. The dilemma is that after 1985 supplementary high-cost sources of natural gas may be needed to avert a recurrence of supply shortfalls and curtailments.

"A recent report of the Department of Energy confirms [Panhandle's] long-term studies which show a steady decline in the availability of domestic gas production in the years ahead. In its annual report to Congress in February [1982], the Department of Energy estimated that domestic gas production would decline by 10 percent in 1985 and by as much as 27 percent in 1990 from the 1980 level. These studies conclusively demonstrate that the long-term needs of existing natural gas markets can only be served if domestic gas production is supplemented by such sources as gas from Canada and imported LNG."[29]

If there is at least a 50 percent chance that the forecast quoted is accurate, wellhead price controls on *all* categories of natural gas should be lifted at once unconditionally. Price controls stifle initiative in exploration for oil and gas and should never be applied if there is substantial risk of a shortfall in the supply of natural gas from domestic sources.

The Federal regulatory authorities probably will adopt a policy of accommodation with Panhandle because the company was licensed by the Federal government to consummate the LNG contract with Sonatrach of Algeria and the basic price of $7.13 Mcf (at Lake Charles) originally was approved.[30] But gas from sources such as Algeria may be needed between 1986 and 1990. If the U.S. government rescinds the Panhandle contract with Sonatrach, the Algerians will be offended. Therefore, in the future, we may expect that the Algerians would rather flare surplus natural gas than offer it for sale to an American company. The gravity of the situation apparently is recognized in Washington, D.C. "Raymond Hanzlik [of the Economic Regulatory Administration] said . . . that the Reagan administration is moving 'slowly and very cautiously' on the Algerian gas issue."[31]

Any speedy action . . . to [rescind Panhandle's contract], Mr. Hanzlik argued would 'send ripples of uncertainty' through Mexico, Canada and other countries that currently [sell] natural gas to the United States. . ."[32]

Synthetic Fuels Are Not Needed Now[33]

In 1980 Congress passed the Energy Security Act which established the U.S. Synthetic Fuels Corporation and gave it authority to subsidize approved synfuels projects by guaranteeing loans and/or prices or by making purchase agreements. The legislation provided that expenditures of the Synfuels Corporation are not to be included in the federal budget and established a goal of producing the equivalent of two million barrels of oil per day synthetically by 1992. Congress authorized the Corporation to allocate a maximum of $17.5 billion to assist synfuels projects until June 30, 1985. At that time, according to the legislation, Congress is to consider allowing the corporation to allocate an additional $68 billion in subsidies and loan guarantees to synfuel projects. However, as of August 1982, Synfuels Corporation has committed only $2.6 billion of the allowable $17.5 billion; the oil and gas surpluses, declining price of crude oil, and continued high interest rates have made synfuel projects unattractive. It is notable that Exxon has withdrawn from participation in the Colony Shale Project in Colorado, and Occidental Petroleum is delaying start of a second project to produce oil from shale. Nevertheless, the Synfuels Corporation is considering loan guarantees, price supports or repurchase agreements to subsidize a number of proposed projects, including coal liquefaction in Wyoming and Kentucky. At this writing, the Corporation has $14.9 billion in unexercised authority to assist (unneeded) synfuel projects. It is hard for bureaucrats to sit on unused authority to allocate subsidies financed by taxpayers, and "private enterprise" doubtless will pressure for release of commitments to subsidize. If the $14.9 billion in assistance is allocated, sponsors of synfuel projects with loan guarantees, price support or repurchase agreements in hand, would be free to borrow several billions of dollars and thereby put an additional burden on the financial markets at a time when interest rates are still high. The Energy Security Act was passed at a time of fear of short supplies in the wake of the cut-off of oil from Iran and the "moral equivalent of war" bamboozle of the Carter Administration. There seems to be a need for a reappraisal of projects to produce synthetic oil or gas in view of the improved supply situation which has unfolded since 1980. Oil from splitting shale rock and gas from coal would be priced far higher than their natural substitutes in a free market. "It is evident that [production of] synfuels [would be] a waste of scarce resources since they [would not be] profitable without subsidies . . . Therefore, a synfuel project which cannot be operated at a profit in the free market compounds the problem of scarcity . . . In addition, the environment [would] be burdened by switching from relatively pollution-free natural gas to synthetic natural gas made from pollution-rich coal. The tremendous amounts of water needed in the production of synfuels will . . . aggravate what has already become a severe shortage in some states."[34]

Nevertheless, with a loan guarantee, a consortium of five pipeline companies, led by American Natural Resources, is building a $2.4 billion coal gasification facility with planned capacity to gasify 22,000 tons of North Dakota lignite per day, equivalent to 125 Mcf of synthetic gas per day. The facility, the Great Plains Gasification Plant of North Dakota, is scheduled for completion in 1985.

Summary and Conclusion

In every geographic region of the United States, residual oil drives gas out of the market for industrial and power plant boiler fuel, the lowest value (marginal use) of gas. Substituting oil or coal for gas increases the surplus of the latter for sale to industry and power plants for use as boiler fuel. The price of this surplus will be controlled by the price of residual oil and, given the market surplus of gas, the price

of residual oil will also determine the level of the wholesale price of gas in all of its uses. Other things being equal, transmission or distribution pipeline companies will be offered surplus gas at the commodity price quoted industry and power plants for boiler fuel use.

In brief, the Btu price of residual oil will clear the market of surplus gas; i.e., boiler fuel use will determine the equilibrium price as long as supplies of natural gas are adequate or redundant. With decontrol, the price of residual oil in the unregulated market will place an upper limit, after a time lag, on the decontrolled price of all categories of gas. Sec. 7 gas and other categories of high cost-high priced gas will be unsalable above the Btu price of residual oil. Decontrol will encourage the production of gas from depths *less than* 15,000 feet and other categories of gas subject to price controls listed in Table 1.

If gas prices at the wellheads were decontrolled and market prices (instead of regulated prices) were permitted to perform their rationing function, wellhead prices probably would reach an equilibrium at 80% of the Btu price of residual oil.

By lifting price controls on Sec. 107 gas in 1980, the NGPA encouraged production of this high cost gas. Transmission companies overestimated their ability to roll in high cost gas with low cost (price controlled) gas and remain competitive because they didn't recognize the constraints of the marketplace, especially competition from residual oil and coal in industrial and power plant boiler fuel use. The price of residual oil declined and the price of gas rose, increasing the vulnerability of gas to competition from oil. Residential and commercial users of gas have responded to price increases by adopting conservation measures.

Federal interference in the marketplace has led to an overallocation of capital to the development of Sec. 107 sources of gas and facilities to import LNG. "We are seeing a lot less interest in the deep gas wells [because] there's a lot of deep gas drilling going on that just won't fly at $5 Mcf."[13]

Of course, in the long run, presumably we are going to need Sec. 107 gas and LNG. But this is no reason for condoning the inadvertent rascality of Congress in passing the incongruous NGPA. Apparently a considerable volume of Sec. 107 gas will be capped in, pending a change in market conditions. In the meantime, capital which could have been employed elsewhere "marks time" and producers who have Sec. 107 gas for sale bear the carrying charges for interest on capital and other fixed charges. These are costs to society because in the long-run, selling prices must compensate full cost of production.

The LNG situation is worse than that of Sec. 107 gas. If the U.S. forces abrogation of a contract to buy LNG from Algeria, thus offending the Algerians, we probably will lose a supplier of gas which may be needed by 1986.

If price controls remain on old gas "permanently," as provided in the NGPA, and if the regulatory buraucracy is permitted to grow, the unequal access of transmission companies to low cost gas could lead to the purchase of entitlements by favorably situated pipeline companies with the revenue going to less favorably situated companies (reminiscent of the crude oil entitlement system under price controls). Forcing producers to price old gas at 25¢ to 60¢ Mcf (the low end of the price control range for old gas) indefinitely may be a violation of the *due process* clause of the Fifth and Fourteenth Amendments to the U.S. Constitution. Control of gas prices at the wellhead no longer makes economic sense since the market for gas has become competitive. Hopefully Congress will be persuaded to recognize the disparity created by the partial and phased deregulation of the NGPA and expedite deregulation of the entire industry.

Footnotes:

[1]Adapted from Tussing and Barlow, "The Rise and Fall of Regulation in the Natural Gas Industry," *Public Utilities Fortnightly,* March 4, 1982, p. 18.

[2]For a review of the history of regulation of the natural gas industry, see Albin J. Dahl, "An Update on Natural Gas," *Nevada Review of Business and Economics,* Spring 1980, pp. 12-21; also, Albin J. Dahl, "Deregulation of Natural Gas at a Political Impasse," *Public Utilities Fortnightly,* October 21, 1976, pp. 24-32.

[3]*Phillips Petroleum Co. v. Wisconsin,* 1954, 347 U.S. 672.

[4]Tom Bethell, "The Gas Price Fixers," *Harpers,* June 1979, p. 41.

[5] *Ibid.*

[6]*Ibid.,* p. 42

[7]*Ibid.,* p. 44.

[8]Fixed costs of transmission and distribution pipelines were 80 percent of the price paid by end users of gas in 1955. In 1978, fixed costs were 60% of the "burner tip" prices, and by 1990, the relative share of pipeline costs is expected to decline to 30 percent of the retail price of gas. Source: *Natural Gas Rate Design Study,* DOE/RG-0035/1, Economic Regulatory Administration, U.S. Department of Energy, May, 1980.

The percentages quoted are national averages. The cost of transporting gas 1500 or 2000 miles from Texas or Louisiana to cities in the New England states exceeded the wellhead price of gas in 1978. In that year, the estimated cost of gas at wellheads was only 20% of the price of gas to residential users in Massachusetts.

It is doubtful if the relative share of pipeline costs will decline by 1990 as the source quoted predicts. (See our discussion of spreading overhead costs over a declining number of gas customers and low load factors of seasonal users.)

[9]Btu, British thermal unit, the amount of heat required to raise the temperature of a pound of water by one degree F. Mcf and MM Btu are alternative ways of quoting the price of natural gas. A price of $3 Mcf approximates a price of $3 MM Btu. The two measures are not necessarily identical because the BTU content varies with the quality of the gas.

[10]Mcf (1,000 cubic feet of gas) is the Btu equivalent of 1/6 of a barrel of crude oil. Converting the OPEC price of crude oil ($33 bbl) measures the natural gas energy equivalent (1/6 of $33) wellhead price at $5.50 Mcf.

[11]Residual oil is high sulphur No. 6 oil, a byproduct of oil refineries. In some areas, especially southern California, environmental regulation prohibits burning high sulphur fuels, or make their use conditional.

The price of residual oil varies, depending on the geographical region. The $23 bbl. price was quoted recently in the Pacific Northwest.

[12]"Gas Pipeliners, Priced into a No-Growth Future," *Business Week,* August 2, 1982, p. 46.

On a national basis, Sec. 107 gas is only five percent of total volume of gas distributed by major pipelines. However, in some instances, Sec. 107 gas may approach 10 percent of total volume of gas distributed.

The true significance of Sec. 107 gas is seen in the instance of the Southern Natural Gas Pipeline (subsidiary of Sonat). The pipeline pays $9 Mcf for less than 10 percent of its *volume* of purchased gas, but this high priced Sec. 107 gas is 29 percent of the pipeline's *cost* of purchased gas. Source: Tussing and Barlow, *op. cit.,* p. 21.

[13]"Gas Consumers Say Pipelines are Paying More than Necessary for Supplies," *The Wall Street Journal,* November 11, 1982, p. 52.

[14]*Ibid.*

[15]*Business Week,* Aug. 2, 1982, p. 45.

[16]*Ibid.*

[17]The incremental pricing provision of the NGPA is that to a limit *high cost* supplementary or incremental supplies of gas must be reflected exclusively in prices industrial customers pay for gas. This has encouraged development of pricing structures which discriminate against large volume industrial boiler fuel use of gas. The history of this provision of the NGPA is discussed in Albin J. Dahl, "An Update on Natural Gas," *op. cit.,* pp. 17-18.

[18]See Albin J. Dahl, *Ibid.* for discussion of the PIFUA, pp. 14-15.

[19]*Business Week,* August 2, 1982, p. 47.

[20]"Algerian Gas has Panhandle in Hot Water," *Business Week,* November 15, 1982, p. 39.

[21]Barry P. Brownstein, "Natural Gas: The Case for Immediate Deregulation," *Policy Report,* a publication of the Cato Institute, August, 1982, p. 1.

[22]Quoted by Tom Bethell, "The Gas Price Fixers," *op. cit.,* p. 104.

[23]"Panhandle Eastern's Customers Object to Price Changes in Algerian LNG Pact," *The Wall Street Journal,* September 30, 1982, p. 8.

[24]*Ibid.*

[25]*Ibid.*

[26]"The Midwest Flares Up over High LNG Prices," *Business Week,* September 27, 1982, p. 28.

[27]*Ibid.*

[28]Panhandle's investment in the Lake Charles facilities and two tankers is $649 million. A partnership in which Panhandle has a 40 percent interest owns the two cryogenic tankers. The investment of Panhandle and the Lachmar partnership totals $1 billion.

It is notable that the Algerian national shipping company owns three cryogenic tankers which are (or were) to participate in transporting LNG to Lake Charles.

[29]Panhandle Eastern Corporation, Second Quarter Report to Stockholders, August 10, 1982, p. 2.

[30]However, the El Paso Natural Gas Pipeline was forced to write off $631 million (before taxes) when the company failed to reach an agreement with Sonatrach on the price of LNG to be imported. "El Paso still has $280 million of assets from its LNG venture on its books and analysts fear further writedowns." Quoted from "Has Burlington Northern 'Shot Itself in the Foot'?" *Business Week,* January 10, 1983, p. 32.

[31]"U.S. Won't Bar Panhandle Use of Algerian Gas," *The Wall Street Journal,* October 5, 1982, p. 6.

[32]*Ibid.*

[33]Based partly on "Synfuels Critics in Congress Go After Billions Set Aside but Still Not Spent," *The Wall Street Journal,* August 11, 1982.

[34]Barry P. Brownstein, "Natural Gas: The Case for Immediate Deregulation," *Op. cit.,* p. 4.

[35]*Business Week,* August 2, 1982, p. 46.

Nevada Economic Indicators

Statewide Statistical Data

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982		PERCENT CHANGE 3rd Quarter-1981 3rd Quarter-1982	
Total Labor Force (000's)	489.6†	489.7†	486.8	488.7	+	.2	+	3.7
Total Employment (000's)	441.2†	439.6†	436.4	439.1	–	1.1	–	.5
Unemployment (000's)	48.4†	50.1†	50.4	49.6	+	14.9	+	67.5
Unemployment Rate	9.9†	10.2†	10.4	10.2	–	23.0	+	61.4
Unemployment Rate (Seasonally Adjusted)	9.8†	10.6†	10.7	10.4	+	14.3	+	56.3
Agricultural Empl. (000's)	6.7†	7.1†	5.9	6.6	+	19.4	+	.5
Establishment Based Industrial Employment								
Total All Industries (000's)	416.8†	416.7†	418.3	417.3	+	.3	–	1.1
Mining	7.2†	7.2†	7.2	7.2	–	3.6	–	11.1
Contract Construction	23.9†	23.9†	23.9	23.9	+	3.5	–	10.0
Manufacturing	19.9†	19.8†	19.6	19.8	–	2.5	–	5.3
Transportation & Utilities								
Transportation	13.5†	13.5†	13.5	13.5	+	.7	+	.7
Railroads	1.8†	1.8†	1.8	1.8	+	0.0	+	0.0
Air	2.9†	2.9†	2.9	2.9	–	2.2	–	9.4
Public Utilities	11.9†	11.9†	11.8	11.9	–	.6	–	1.1
Total Trade	86.4†	86.6†	86.4	86.5	+	.9	+	.2
Wholesale Trade	14.0†	14.0†	14.0	14.0	+	.7	–	2.1
Retail Trade	72.4†	72.6†	72.4	72.5	+	.9	+	.7
Finance, Ins., Real Estate	18.1†	18.0†	17.9	18.0	–	.9	–	3.2
Service Industries	181.3†	181.5†	180.3	181.0	+	2.0	–	.2
Hotels, Amusement and Recreation Combined	117.8†	117.9†	116.6	117.4	+	2.6	–	2.7
Medical and Health	15.6†	15.6†	15.6	15.6	+	1.1	+	7.8
Total Government	54.6†	54.3†	57.7	55.5	–	4.8	+	1.7
Federal	9.6†	9.5†	9.4	9.5	+	.7	+	.7
State and Local	45.0†	44.8†	48.3	46.0	–	5.9	+	1.9
Education	15.8†	15.6†	20.1	17.2	–	16.3	+	2.8
Average Weekly Earnings in Selected Industries								
Mining	466.32†	475.43†	474.16	471.97	–	1.8	+	4.4
Construction	637.21†	624.89†	636.49	632.86	+	8.3	+	7.7
Manufacturing	328.71†	337.69†	328.19	331.53	+	2.5	–	.1
Public Utilities	433.09†	432.83†	438.69	434.87	+	3.0	+	6.2
Trade	262.57†	263.65†	268.32	264.85	+	3.2	+	5.9
Average Weekly Hours in Selected Industries								
Mining	40.2†	40.6†	40.7	40.5	–	2.6	–	1.1
Construction	36.6†	36.1†	35.4	36.0	+	1.1	–	.2
Manufacturing	37.1†	38.2†	37.0	37.4	+	1.9	–	3.1
Public Utilities	40.4†	39.6†	40.1	40.0	+	1.0	–	2.2
Trade	34.1†	34.6†	34.4	34.4	+	1.4	–	.7
Average Hourly Earnings in Selected Industries								
Mining	11.60†	11.71†	11.65	11.65	+	.8	+	5.7
Construction	17.41†	17.31†	17.98	17.57	+	7.1	+	7.9
Manufacturing	8.86†	8.84†	8.87	8.86	+	.6	+	3.1
Public Utilities	10.72†	10.93†	10.94	10.86	+	2.0	+	8.6
Trade	7.70†	7.62†	7.80	7.71	+	1.9	+	6.6
Construction Activity								
Residential ($000's)	59,600	49,800	38,100	147,500	–	11.1	–	35.4
Nonresidential ($000's)	20,300	13,800	14,500	48,600	–	30.6	–	46.9
Nonbuilding ($000's)	28,300	3,600	18,000	49,900	–	21.4	+	124.8
Total ($000's)	108,200	67,200	70,600	246,000	–	17.9	–	28.1
# of New Dwelling Units	1,617	631	994	3,242	+	41.0	+	20.1
Banking Activities ($000,000's)								
Loans	2,134	2,126	2,020	2,093	–	1.3	+	6.0
Investments	682	705	660	682	+	2.5	+	3.0

Statewide Statistical Data (Continued)

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982	3rd Quarter-1981 3rd Quarter-1982
Total Deposits	2,978	2,982	3,084	3,014	– .1	+ 10.6
Demand Deposits	906	920	933	919	– 1.1	– 4.3
Time & Savings Deposits	2,069	2,060	2,147	2,092	+ .4	+ 18.9
Tax Collections ($)						
Liquor	908,391	924,437	976,180	2,809,008	– 14.4	– 4.7
Cigarette	1,222,714	1,204,225	1,171,818	3,598,757	+ 12.5	+ 1.1
Fuel	3,480,032	3,883,917	4,001,137	11,365,086	+ 19.7	+ 23.7
Taxable Sales ($000's)	–	–	–	1,692,128	+ 1.7	– 3.0
Gaming Revenues ($000's)	–	–	–	723,452	+ 8.7	+ 5.1
Highway Traffic Flow						
17 Selected Stations (Avg. Daily)	133,362	130,777	117,069	127,069	+ 16.6	– 1.2

† Revised.

Las Vegas Standard Metropolitan Statistical Area

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982	PERCENT CHANGE 3rd Quarter-1981 3rd Quarter-1982
Total Labor Force (000's)	271.0†	271.2†	270.9	271.0	– .3	+ 3.9
Total Employment (000's)	240.8†	239.9†	239.4	240.0	– 1.9	– .6
Unemployment (000's)	30.2†	31.3†	31.5	31.0	+ 15.0	+ 61.7
Unemployment Rate	11.1†	11.5†	11.6	11.4	+ 14.8	+ 54.8
Unemployment Rate (Seasonally Adjusted)	10.7†	11.5†	11.7	11.3	+ 13.0	+ 54.8
Agricultural Employment (000's)	1.0†	1.1†	.9	1.0	– 15.4	+ 0.0
Establishment Based						
Industrial Employment						
Total All Industries (000's)	229.4†	229.6†	231.3	230.1	– .2	– 1.0
Mining	.5†	.5†	.5	.5	– 11.8	– 16.7
Contract Construction	14.1†	14.0†	14.2	14.1	+ 2.4	– 8.8
Manufacturing	7.2†	7.2†	7.1	7.2	– 2.7	– 5.7
Transportation & Utilities						
Transportation	7.9†	7.9†	7.9	7.9	– .8	– 2.1
Railroads	.7†	.7†	.7	.7	+ 0.0	+ 0.0
Air	2.4†	2.4†	2.4	2.4	+ 0.0	– 8.9
Public Utilities	6.1†	6.0†	6.0	6.0	+ .6	+ 1.7
Total Trade	48.7†	48.7†	48.7	48.7	+ .2	– .6
Wholesale Trade	6.4†	6.4†	6.5	6.4	+ 1.6	– 3.0
Retail Trade	42.3†	42.3†	42.2	42.3	+ 0.0	– .2
Finance, Ins., Real Estate	10.4†	10.3†	10.3	10.3	– 1.3	– 2.8
Service Industries	109.1†	109.7†	109.3	109.4	+ 1.0	– .6
Hotels, Gaming & Recreation	69.6†	70.2†	69.8	69.9	+ 1.1	– 3.8
Total Government	25.4†	25.3†	27.3	26.0	– 5.2	+ 3.2
Federal	4.9†	4.9†	4.9	4.9	+ 1.4	+ 2.8
State and Local	20.5†	20.4†	22.4	21.1	– 6.6	+ 3.3
Education	7.7†	7.6†	10.1	8.5	– 17.5	+ 2.0
Construction Activity						
Las Vegas						
Residential ($000's)	6,131	4,381	3,304	13,816	+ 35.0	+ 17.6
Nonresidential ($000's)	8,721	39,489	12,055	60,265	+ 230.8	+ 521.9
Total Value ($000's)	14,852	43,870	15,359	74,081	+ 160.4	+ 245.6
# of New Family Units	225	116	102	443	+ 71.7	+ 5.7
North Las Vegas						
Residential ($000's)	910	1,338	2,390	4,638	+ 28.4	+ 26.3
Nonresidential ($000's)	2,104	456	3,857	6,417	– 26.6	– 6.6
Total Value ($000's)	3,014	1,794	6,247	11,055	– 10.5	+ 4.9
# of Permits	48	74	89	211	+ 1.0	– 3.7
Energy Consumption						
Sales (000's KWH)	630,645	647,924	509,974	1,788,543	+ 34.1	– 9.0
# of Customers	202,697	202,791	203,360	202,949	+ .6	+ 3.4
Taxable Sales ($000's)	–	–	–	891,938	– 2.8	– 4.0
Gaming Revenues ($000's)	–	–	–	455,477	+ 2.9	+ 7.3
Air Transportation-McCarran						
Passengers (Arr. & Depart.)	786,518	841,620	740,662	2,368,800	+ .2	– 1.9
Cargo Enplaned (lbs.)	799,123	815,720	865,424	2,480,267	+ .9	– 19.8
Cargo Deplaned (lbs.)	1,391,789	1,428,923	1,592,152	4,412,864	– 5.4	– 6.4
Highway Traffic Flow						
4 Selected Stations (Avg. Daily)	36,309	35,094	31,215	34,206	+ 9.0	+ 2.3
Room Tax ($)						
Clark County	NA	NA	NA	NA	NA	NA
Las Vegas City	NA	NA	NA	NA	NA	NA
SMSA Total	NA	NA	NA	NA	NA	NA

†Revised.

Reno Standard Metropolitan Statistical Area

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982	PERCENT CHANGE 3rd Quarter-1981 3rd Quarter-1982
Total Labor Force (000's)	134.9†	134.6†	134.1	134.5	+ .5	+ 4.0
Total Employment (000's)	124.5†	123.9†	123.3	123.9	– .7	+ .4
Unemployment (000's)	10.4†	10.7†	10.8	10.6	+ 16.4	+ 78.2
Unemployment Rate	7.7†	8.0†	8.1	7.9	+ 16.7	+ 72.5
Unemployment Rate (Seasonally Adjusted)	8.4†	9.3†	9.3	9.0	+ 24.4	+ 67.7
Agricultural Employment (000's)	.8†	.8†	.7	.8	+ 21.1	–0–
Establishment Based Industrial Employment						
Total All Industries (000's)	117.2†	117.2†	117.8	117.4	+ .9	– .1
Mining	.8†	.8†	.8	.8	+ 4.3	+ 0.0
Contract Construction	6.0†	6.1†	6.0	6.0	+ 6.5	– 5.2
Manufacturing	8.1†	8.0†	8.0	8.0	– 2.4	– 6.9
Transportation & Utilities						
Transportation	3.9†	3.9†	3.9	3.9	+ 1.7	+ 5.4
Railroads	.5†	.5†	.5	.5	+ 0.0	+ 0.0
Public Utilities	4.1†	4.1†	4.1	4.1	– 3.9	– 8.2
Total Trade	26.5†	26.6†	26.6	26.6	+ 1.3	+ 1.8
Wholesale Trade	6.5†	6.6†	6.5	6.5	+ .5	+ .5
Retail Trade	20.0†	20.0†	20.1	20.0	+ 1.5	+ 2.2
Finance, Ins., Real Estate	5.9†	5.9†	5.8	5.9	– 1.1	– 5.4
Service Industries	46.6†	46.6†	46.4	46.5	+ 3.5	+ 1.2
Hotels, Gaming & Recreation	30.5†	30.4†	30.1	30.3	+ 4.7	+ .7
Total Government	15.3†	15.2†	16.2	15.6	– 5.1	+ 1.5
Federal	2.6†	2.5†	2.5	2.5	+ 0.0	+ 1.3
State and Local	12.7†	12.7†	13.7	13.0	– 6.0	+ 1.6
Education	5.2†	5.1†	6.4	5.6	– 14.4	+ 4.4
Construction Activity						
Reno						
Residential ($000's)	2,148	1,323	4,648	8,119	+ 103.8	– 10.6
Nonresidential ($000's)	1,459	833	1,440	3,732	– 45.5	– 71.7
Total Value ($000's)	3,607	2,156	6,088	11,851	+ 9.4	– 46.8
# of New Family Units	32	3	118	153	+ 200.0	+ 59.4
Sparks						
Residential ($000's)	439	742	1,029	2,210	– 65.9	– 50.2
Nonresidential ($000's)	1,316	316	761	2,393	– 24.7	+ 4.0
Total Value ($000's)	1,755	1,058	1,790	4,603	– 52.4	– 31.7
# of New Family Units	7	17	22	46	– 80.4	+ 76.9
Washoe County (Unincorporated)						
Residential ($000's)	4,203	5,024	5,536	14,763	+ 38.7	– 23.0
Nonresidential ($000's)	742	1,734	475	2,951	+ 7.7	+ 39.5
Total Value ($000's)	4,945	6,758	6,011	17,714	+ 32.4	– 17.1
# of New Family Units	37	36	44	117	+ 31.5	– 33.1
Taxable Sales ($000's)	–	–	–	407,033	+ .2	– 9.5
Gaming Revenues ($000's)	–	–	–	155,665	+ 13.4	+ 3.3
Air Transportation-Reno						
Passengers (Arr. & Depart.)	228,075	237,198	207,310	672,583	+ 5.5	+ 10.1
Cargo Enplaned (lbs.)	485,190	518,023	529,948	1,533,161	– 3.6	+ 21.4
Cargo Deplaned (lbs.)	538,848	497,386	521,597	1,557,831	+ 1.4	+ 5.1
Highway Traffic Flow						
7 Selected Stations (Avg. Daily)	78,366	77,251	69,609	75,075	+ 18.5	– 2.6
Room Tax ($)						
Washoe County	67,659	92,682	101,146	261,487	NA	NA
Reno	607,593	638,354	654,256	1,900,203	NA	NA
Sparks	45,126	43,371	43,550	132,047	NA	NA
SMSA Total	719,378	774,407	798,952	2,292,737	NA	NA

† Revised.

Nevada Statistical Data by County

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982	PERCENT CHANGE 3rd Quarter-1981 3rd Quarter-1982
CARSON CITY						
Total Labor Force	21,440†	21,650†	21,320	21,470	+ .7	+ 5.0
Total Employment	19,510†	19,450†	19,200	19,386	– .1	+ 1.3
Unemployment	1,930†	2,200†	2,120	2,083	+ 8.5	+ 59.0
Unemployment Rate	9.0†	10.2†	10.0	9.7	+ 8.6	+ 52.1
Construction Activity						
Residential Value ($000's)	215	670	2,288	3,173	– .2	+ 45.6
Nonresidential Value ($000's)	659	444	3,435	4,538	+ 26.3	+ 378.7
Total Value ($000's)	874	1,114	5,723	7,711	+ 13.8	+ 146.5
# of New Family Units	3	6	39	48	+ 140.0	+ 71.4
Taxable Sales ($000's)	–	–	–	49,377	+ 3.6	– 8.1
Gaming Revenues ($000's)	–	–	–	9,891	+ 13.5	– .3
CHURCHILL						
Total Labor Force	6,940†	6,910†	6,670	6,840	+ 1.5	+ 6.3
Total Employment	6,120†	6,140†	5,920	6,060	+ 1.3	+ 1.0
Unemployment	820†	770†	750	780	+ 3.1	+ 78.6
Unemployment Rate	11.7†	11.1†	11.3	11.4	+ 1.5	+ 68.8
Construction Activity						
Residential Value ($000's)	107	72	201	380	– 14.6	– 23.7
Nonresidential Value ($000's)	51	221	134	406	– 54.0	– 24.8
Total Value ($000's)	158	293	335	786	– 40.8	– 24.3
# of New Family Units	2	1	5	8	+ 100.0	+ 0.0
Taxable Sales ($000's)	–	–	–	17,480	+ 33.6	+ 20.1
Gaming Revenues ($000's)	–	–	–	1,069	+ 4.6	+ 11.2
DOUGLAS						
Total Labor Force	9,390†	9,230†	8,900	9,173	+ 0.0	– 4.0
Total Employment	8,650†	8,520†	8,140	8,436	– .6	– 6.5
Unemployment	740†	710†	760	736	+ 7.3	+ 38.1
Unemployment Rate	7.9†	7.7†	8.5	8.0	+ 7.6	+ 44.3
Taxable Sales ($000's)	–	–	–	54,533	+ 43.1	+ 17.8
Gaming Revenues ($000's)	–	–	–	79,058	+ 33.8	– 3.3
ELKO						
Total Labor Force	12,770†	12,680†	12,320	12,590	+ 1.3	+ 1.3
Total Employment	11,850†	11,800†	11,340	11,663	+ .5	– 2.1
Unemployment	920†	880†	980	926	+ 12.6	+ 79.4
Unemployment Rate	7.2†	7.0†	8.0	7.4	+ 11.6	+ 79.0
Construction Activity						
Elko City						
Residential ($000's)	1,643	93	461	2,197	+ 105.9	+ 716.7
Nonresidential ($000's)	2,263	655	1,480	4,398	+ 818.2	+ 50.0
Total Value ($000's)	3,906	748		6,595	+ 326.6	+ 187.4
# of New Dwelling Units	46	1	10	57	+ 280.0	+ 1,325.0
Taxable Sales ($000's)	–	–	–	38,562	+ 7.7	+ 8.0
Gaming Revenues ($000's)	–	–	–	14,643	+ 9.0	+ 10.4
ESMERALDA						
Total Labor Force	330†	310†	320	320	+ 4.3	– 1.0
Total Employment	260†	260†	260	260	– 1.3	– 12.4
Unemployment	70†	50†	60	60	+ 38.5	+ 125.0
Unemployment Rate	20.2†	16.7†	19.5	18.8	+ 38.6	+ 156.4
Taxable Sales ($000's)	–	–	–	1,181	+ 69.0	+ 100.2
EUREKA						
Total Labor Force	920†	950†	860	910	+ 7.9	+ 4.6
Total Employment	800†	820†	750	790	+ 4.9	– .8
Unemployment	120†	130†	110	120	+ 33.3	+ 63.6
Unemployment Rate	12.6†	13.9†	12.4	13.0	+ 21.2	+ 56.2
Taxable Sales ($000's)	–	–	–	1,865	+ 96.9	+ 64.6

Nevada Statistical Data by County (Continued)

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982	PERCENT CHANGE 3rd Quarter-1981 3rd Quarter-1982
HUMBOLDT						
Total Labor Force	6,470†	6,430†	6,170	6,356	+ 1.2	+ 3.4
Total Employment	5,880†	5,880†	5,640	5,800	+ 1.0	– 1.5
Unemployment	590†	550†	530	556	+ 3.1	+ 111.4
Unemployment Rate	9.1†	8.6†	8.5	8.7	+ 1.2	+ 103.1
Taxable Sales ($000's)	–	–	–	18,626	+ 12.2	+ 5.2
Gaming Revenues ($000's)	–	–	–	2,755	+ 35.0	+ 6.2
LANDER						
Total Labor Force	2,840†	2,880†	2,810	2,843	+ 2.0	+ 3.1
Total Employment	2,590†	2,590†	2,500	2,560	+ .4	– 3.2
Unemployment	250†	290†	310	283	+ 19.7	+ 150.0
Unemployment Rate	8.8†	9.9†	11.1	9.9	+ 18.3	+ 142.3
Taxable Sales ($000's)	–	–	–	8,208	+ 17.5	+ 19.6
Gaming Revenues ($000's)	–	–	–	239	+ 45.7	– 4.4
LINCOLN						
Total Labor Force	2,840†	2,870†	2,860	2,856	+ 4.5	+ 8.3
Total Employment	2,540†	2,570†	2,550	2,553	+ 2.3	+ 3.5
Unemployment	300†	300†	310	303	+ 28.2	+ 78.4
Unemployment Rate	10.5†	10.6†	10.9	10.7	+ 23.6	+ 65.8
Taxable Sales ($000's)	–	–	–	1,988	+ 38.5	– .8
LYON						
Total Labor Force	5,040†	5,030†	4,900	4,990	+ 2.4	+ 1.9
Total Employment	4,380†	4,400†	4,180	4,320	+ 1.2	– 5.1
Unemployment	660†	630†	720	670	+ 10.4	+ 93.3
Unemployment Rate	13.0†	12.6†	14.7	13.4	+ 8.0	+ 89.2
Construction Activity						
Residential ($000's)	NA	NA	NA	NA	NA	NA
Nonresidential ($000's)	NA	NA	NA	NA	NA	NA
Total Value ($000's)	NA	NA	NA	NA	NA	NA
# of New Family Units	NA	NA	NA	NA	NA	NA
Taxable Sales ($000's)	–	–	–	12,609	+ 11.1	– 5.6
Gaming Revenues ($000's)	–	–	–	397	+ 20.7	+ 34.6
MINERAL						
Total Labor Force	3,390†	3,320†	3,240	3,316	+ 7.9	– 2.6
Total Employment	3,060†	2,970†	2,930	2,986	+ 4.4	– 7.6
Unemployment	330†	350†	310	330	+ 54.7	+ 90.4
Unemployment Rate	9.7†	10.4†	9.6	9.9	+ 42.8	+ 94.1
Taxable Sales ($000's)	–	–	–	4,010	– 29.0	– 11.8
Gaming Revenues	–	–	–	1,448	+ 14.6	+ 1.9
NYE						
Total Labor Force	3,110†	3,250†	3,350	3,236	– .1	+ 5.4
Total Employment	2,890†	2,920†	3,080	2,963	– 2.8	+ 1.6
Unemployment	220†	330†	270	273	+ 43.9	+ 78.3
Unemployment Rate	7.0†	10.2†	8.0	8.4	+ 46.5	+ 70.3
Taxable Sales ($000's)	–	–	–	19,333	– 9.2	+ 22.4
Gaming Revenues ($000's)	–	–	–	1,091	– 11.8	– 3.0
PERSHING						
Total Labor Force	2,010†	2,050†	1,920	1,993	+ 2.2	– 9.8
Total Employment	1,900†	1,900†	1,800	1,866	+ 1.6	– 9.7
Unemployment	110†	150†	120	126	+ 11.8	– 11.6
Unemployment Rate	5.5†	7.1†	6.1	6.2	+ 6.3	– 1.1
Taxable Sales ($000's)	–	–	–	22,799	+ 541.9	+ 510.6
Gaming Revenues ($000's)	–	–	–	286	+ 42.3	+ 65.3

Nevada Statistical Data by County (Continued)

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982	PERCENT CHANGE 3rd Quarter-1981 3rd Quarter-1982
STOREY						
Total Labor Force	1,470†	1,440†	1,430	1,446	+ 2.4	+ .5
Total Employment	1,330†	1,310†	1,270	1,303	+ .5	– 3.9
Unemployment	140†	130†	160	143	+ 22.9	+ 72.0
Unemployment Rate	9.8†	9.2†	11.5	10.2	+ 22.0	+ 80.5
Taxable Sales ($000's)	–	–	–	2,607	+ 30.7	– 14.2
Gaming Revenues ($000's)	–	–	–	863	+ 62.2	+ 2.0
WHITE PINE						
Total Labor Force	4,820†	4,890†	4,720	4,810	+ 3.4	+ 11.1
Total Employment	4,190†	4,210†	4,140	4,180	+ 1.5	+ 2.0
Unemployment	630†	680†	580	630	+ 18.9	+ 173.9
Unemployment Rate	13.0†	14.0†	12.3	13.1	+ 14.6	+ 144.1
Construction Activity						
Total Value ($000's)	NA	NA	NA	NA	NA	NA
# of Permits	NA	NA	NA	NA	NA	NA
Taxable Sales ($000's)	–	–	–	11,117	+ 16.3	– 13.1
Gaming Revenues ($000's)	–	–	–	538	+ 10.5	– 18.6

† Revised.

Selected U.S. and Regional Economic Indicators

Consumer Price Index & Indexes of Selected Categories
All Urban Consumers
(1967 = 100%)

	July 1982	August 1982	September 1982	3rd Quarter 1982	PERCENT CHANGE 2nd Quarter-1982 3rd Quarter-1982	PERCENT CHANGE 3rd Quarter-1981 3rd Quarter-1982
All Items	292.2	292.8	293.3	292.8	+ 1.9	+ 5.8
Food	288.5	287.4	287.6	287.8	+ .7	+ 3.8
Housing	319.2	320.1	319.7	319.7	+ 1.9	+ 6.5
Apparel and Upkeep	189.7	191.8	194.9	192.1	+ .4	+ 1.9
Transportation	296.1	296.2	295.3	295.9	+ 3.1	+ 4.2
Medical Care	330.0	333.3	336.0	333.1	+ 2.8	+ 11.5

Producer Price Indexes for Selected Commodity Groupings
(1967 = 100%)

All Commodities	300.6	300.4	299.5	300.2	+ .5	+ 1.4
Fuel and Power	701.8	705.7	701.8	703.1	+ 4.9	– .1
Machinery and Equipment	279.4	279.7	280.3	279.8	+ .7	+ 5.1
Metals and Metal Products	300.2	300.2	301.8	300.7	– .6	– 1.1
Nonmetallic Mineral Products	320.3	320.4	320.2	320.3	+ .3	+ 2.1
Textile Products & Apparel	204.1	203.9	203.8	203.9	– .4	+ 1.2

U.S. Labor Force

Civilian Labor Force (000's)	112,526	111,887	110,546	111,653	+ 1.4	+ 4.0
Total Employment (000's)	101,490	101,177	99,851	100,839	+ 1.0	+ 1.3
Unemployment (000's)	11,036	10,710	10,695	10,813	+ 5.3	+ 38.8
Unemployment Rate	9.8	9.6	9.7	9.7	+ 3.6	+ 33.5
Unemployment Rate (Seasonally Adjusted)	9.8	9.8	10.1	9.9	+ 4.6	+ 36.9

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Population Estimates For Nevada by Counties and Independent Cities: 1980, 1981, 1982

	July 1 1982	July 1 1981	April 1 1980
Carson City	33,929	33,201	32,022
Churchill County	14,721	14,669	13,917
Fallon	4,651	4,623	4,262
Clark County	515,021	494,463	463,087
Boulder City	10,668	10,242	9,590
Henderson	28,680	26,020	24,363
Las Vegas	183,184	175,872	164,674
North Las Vegas	47,543	45,645	42,739
Douglas County	21,419	20,784	19,421
Elko County	19,875	18,791	17,269
Carlin	1,323	1,336	1,232
Elko	10,120	9,565	8,758
Wells	1,385	1,309	1,218
Esmeralda County	900	799	777
Eureka County	1,395	1,369	1,198
Humboldt County	11,816	10,782	9,434
Winnemucca	5,186	4,732	4,140
Lander County	5,261	4,983	4,076
Lincoln County	4,288	3,997	3,732
Caliente	1,129	1,052	982
Lyon County	15,235	14,546	13,594
Yerington	2,286	2,183	2,021
Mineral County	6,286	6,302	6,217
Nye County	13,324	11,103	9,048
Gabbs	871	854	811
Pershing County	3,739	3,610	3,408
Lovelock	1,826	1,756	1,680
Storey County	1,700	1,590	1,503
Washoe County	208,321	202,474	193,623
Reno	107,607	104,575	100,756
Sparks	42,604	41,995	40,780
White Pine	9,313	8,763	8,167
Ely	5,567	5,238	4,882
STATE	886,543	852,226	800,493

Prepared for the State Planning Coordinator's Office by the Bureau of Business and Economic Research, College of Business Administration, University of Nevada, Reno — December, 1982.

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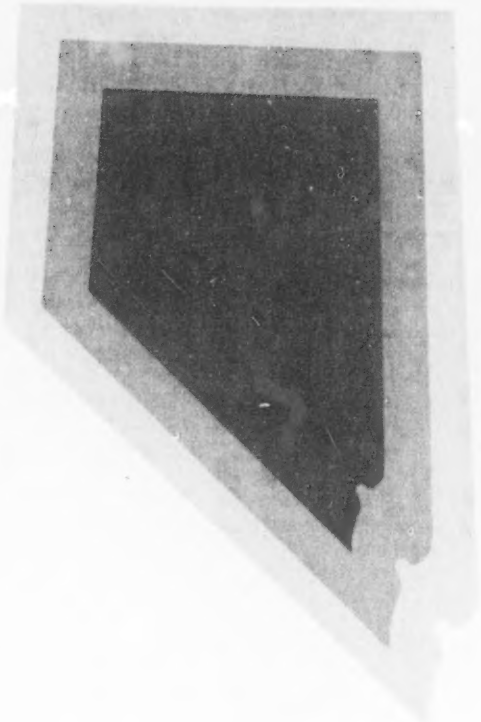

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In This Issue

Spring 1983 **Volume VII, No. 1**

Natural Gas in Transition (Part II) 2
Albin J. Dahl

Trends in Computer Usage in the State of Nevada 12
William J. Corney and John E. Nixon

Campaigning for Corporate Office 18
Philip C. Grant

The Image of the College of Business Administration at the University of Nevada, Reno as Perceived by the Local Business Community 23
Kyung-Il (Ed) Ghymn

Nevada Economic Indicators 27

Announcement: The Gambling Papers: Proceedings of the Fifth National Conference on Gambling and Risk Taking 28

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Natural Gas in Transition (Part II)

*By Albin J. Dahl**

Part I, dealing with natural gas in the American economy as a whole, was published in the Winter 1982-83 issue of this journal.

Part II deals with natural gas in Nevada against the background of the policy issues discussed in Part I.

The reader who is unfamiliar with the provisions of the Natural Gas Policy Act of 1978 should review Part I for the fundamentals essential to an understanding of much of the content of this present article.

The author concludes, in part, that hopefully, threats of Congressional action to require renegotiation of upstream gas supply contracts and competitive pressure from alternative fuels will persuade producers to seek a market clearing price for natural gas.

Introduction

The natural gas industry is described at three different levels. Gas production at the wellheads, operation of gathering pipes at gas and oil fields, and processing gas to remove impurities are at the primary or initial level of the natural gas industry. The primary level is referred to as *upstream*.

Gas is fed into transmission pipelines (interstate and intrastate) after gathering and processing at production fields for transportation long distances under high pressure. As the term is used here, *long distance* is conceptual; if the distance is long enough to require that the gas be moved under high pressure, the transportation is by transmission pipelines. From primary transmission pipelines gas passes to branch lines and finally to distribution pipelines where gas is moved under low pressure appropriate for local delivery to end users of utility service.

Gas transmission pipelines which connect with pipelines over state lines are subject to federal regulations. State public service commissions have jurisdiction over gas under low pressure in local mains for distribution to consumers.

In sum, therefore, the three levels of the gas industry are (1) production, gathering, and processing at oil and gas fields; (2) transmission under high pressure by pipeline; (3) distribution locally under low pressure to premises of end use customers of public utility gas distribution companies.

Since 1954 the price of natural gas at wellheads for transmission in interstate commerce has been regulated by agencies of the federal government, first by the Federal Power Commission and since 1979 by the Federal Energy Regulatory Commission (FERC). Therefore, when interstate transmission pipeline companies contracted to buy natural gas from producers, the price per thousand cubic feet (Mcf) was not negotiable. It was fixed by federal regulatory authority.

Apparently producers of gas have had greater bargaining power than negotiators for transmission pipeline companies. Growth in volume of gas offered for sale by producers was flat from 1967 to 1969. Curtailment of gas supplies to pipeline companies was moderate in 1970 and 1971, ranging from 5% to 10%, but reached a peak as high as 20% (in some instances) during the winter of 1976/1977, when temperatures along the entire East Coast of the U.S. dipped significantly below normal. The relative strength of gas producers in dealing with interstate transmission companies apparently increased after 1977. Producers prevailed upon interstate transmission companies to accept provisions in long-term gas supply contracts not specifically disallowed by the Natural Gas Act of 1938 or by the Natural Gas Policy Act (NGPA) of 1978. Inclusion of escalation clauses in these contracts has been standard procedure for a long time. An area escalator clause allows the producer to raise price to the level of the maximum ceiling authorized by the regulatory commission for the corresponding category of gas. The FERC permits area rate escalation clauses to trigger increases in prices to reach the NGPA ceiling for the applicable category of gas. After the NGPA of 1978 permitted price increases for new gas based on rising prices of crude oil, escalation clauses have had an appreciable inflationary effect on the average wellhead price of new natural gas.

More recently, gas producers have negotiated "take or pay" clauses into supply contracts with transmission companies. These provisions require the pipeline company to pay for a specified minimum volume of gas annually even if there is no market or storage capacity for the full contractual volume, and the transmission company therefore cannot feed the surplus into its lines.

**Albin J. Dahl is Professor of Economics and Editor of the Nevada Review of Business and Economics,* Bureau of Business and Economic Research, College of Business Administration, University of Nevada, Reno.

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Federal commissions regulate gas transmission companies by a cost of service *public utility* standard, allowing each transmission pipeline a rate of return on its rate base. Building gas pipeline systems is very capital intensive. Therefore, to protect users of gas utility service, federal regulatory agencies will issue a certificate of convenience and necessity only if the pipeline taps a proven reserve of gas large enough to supply the pipeline a contractual volume of gas for a minimum of ten years.

Nevada's Gas Transmission and Distribution Companies

Three companies comprise the natural gas industry of Nevada: Southwest Gas Corporation (transmission and distribution); Sierra Pacific Power Company and CP National (distribution only).

Southwest operates the only gas transmission pipeline system in Nevada and supplies gas at the wholesale and/or retail level in 13 of the state's 17 counties. The Company's Northern Division operates a gas transmission pipeline extending from the Idaho-Nevada border to Reno. At the Idaho border point of interconnection Southwest's Northern Division buys gas from the Northwest Pipeline Company, a subsidiary of Northwest Energy Company. This transmission pipeline of the Northern Division supplies gas to Sierra Pacific Power Company (Sierra) for resale (at retail rates) to end users within Sierra's service territory which is essentially the Truckee Meadows communities of Reno, Sparks and Verdi.

Therefore, the Southwest Gas Northern Division's pipelines supply gas at the retail level in northern Nevada outside of Sierra's service territory; i.e., to various small cities, towns, and rural communities such as Fallon, Fernley, Winnemucca, Minden, Gardnerville, Yerington, Carson City, Battle Mountain, Lovelock, Carlin, Elko, Silver Springs, Dayton, Wadsworth, Incline Village and Stateline, Lake Tahoe. On the California side, Southwest supplies gas to the north shore of Tahoe, to Martis Valley in Placer County and to North Star.

The Southern Division of Southwest is supplied by the El Paso Natural Gas Company at the point of interconnection of the transmission lines of the two companies near Topock, Arizona. Southwest distributes this supply of gas at retail in Las Vegas, North Las Vegas, Boulder City, and in certain unincorporated territory in Clark County. Southwest's Southern Division sells gas to CP National for retail distribution in the City of Henderson, south of Las Vegas.

In addition to its Nevada operations, the Southern Division of Southwest purchases natural gas from the Pacific Gas & Electric Company at Victorville, California, for retail distribution locally in Barstow, the Big Bear Lake area, and to 14 other communities in the Mojave River Valley of San Bernardino County.

In Arizona, the Southern Division purchases gas from the El Paso Natural Gas Company for retail distribution to communities in Gila, Pima, Pinal, Mohave, and Greenlee Counties of Arizona. In 1979, Southwest acquired the gas distribution system of the Tucson Electric Power Company.

Fifty percent of Southwest's gas customers are in Arizona, 35 percent are in Nevada and 15 percent are in California. Of the Nevada customers, 75 percent are in southern Nevada, mainly Clark County.

Sources of Natural Gas Exported to Nevada

As we have seen, Southwest Gas relies on two major interstate gas transmission pipeline systems for its principal supplies of gas, viz., Northwest Pipeline (Northern Division) and El Paso Natural Gas (Southern Division). But these two transmission companies (Northwest and El Paso) also supply gas for resale to a population of 24.4 million in adjacent California. Nevada, with a population of only 886,500 consumes a small percentage of the gas transmitted by the Northwest and El Paso pipeline companies. A brief description of each of these gas transmission systems will serve to indicate the regions of origin of Nevada's gas supply and life indexes.

The gas transmission and gathering pipelines of Northwest Pipeline Corporation extend from the San Juan basin of northwestern New Mexico and southwestern Colorado, reaches into eastern Utah and southwestern Wyoming, traverses Idaho and interconnects with a Canadian gas supply pipeline near Sumas, Washington, at the Canadian border. Northwest's supply transmission pipeline extends through Washington and western Oregon to supply gas for distribution in northern California. The pipeline of Southwest Gas interconnects with another segment of the Northwest system at the Nevada-Idaho border.

During 1982, Northwest acquired the gas transmission business of Cities Service Company, a 9748 mile transmission and gathering system, supplying gas to five midwestern states, including metropolitan areas of Kansas and Missouri.

In 1982, Northwest Pipeline obtained 59 percent of its natural gas requirements from Rocky Mountain states and 41 percent was imported from Canada, supplied by the Westcoast Transmission Company. As of year-end 1982, proved gas reserves owned by Northwest or controlled by long-term contracts with gas producers were equal to 21.6 times the volume of gas sold by the company during the preceding 12 months. The gas reserve life index of 21.6 years for Northwest Pipeline is the highest of any major gas transmission company in the United States.[1]

The price of natural gas exported from Canada to the United States is determined by the National Energy Board (NEB), an agency of the Canadian government. The price at which Northwest Pipeline buys gas from Canada is subject to approval by the Federal Energy Regulatory Commission (FERC) and by the Economic Regulatory Administration (ERA) of the Department of Energy. In 1981, the weight of bargaining power favored the Canadian NEB and therefore in that year, the FERC and the ERA reluctantly approved a price of $4.94 Mcf for gas from Canada. The NEB policy is to price natural gas for export at the Btu equivalent of the world price of crude oil. The NEB argued that strict adherence to its pricing policy would mean a price of $5.68 Mcf for Canadian gas.[2] The price of $4.94 Mcf agreed to by the U.S. agencies is about twice the average $2.84 Mcf price for

gas from domestic wellheads.

The recent reduction of $5.00 per barrel in the price of crude oil translates into the equivalent of a cut of 85¢ Mcf for natural gas, or from $4.94 Mcf to $4.09 Mcf for gas from Canada. The NEB's preference would be to deduct 85¢ Mcf from the full $5.68 Mcf maximum allowable under its parity with world crude oil prices formula. That preference is moot, however, because neither $4.94 Mcf nor $4.09 Mcf is viable in the U.S. market at the present time. Notwithstanding the current softmarket for gas in the U.S. economy, on April 12 the Canadian government reduced its export price of gas by only 11 percent, to $4.40 Mcf.[3] Mexico followed suit, cutting the price of gas exported to the U.S. to $4.40 Mcf.

Canadian energy officials have adopted a two-tier pricing formula providing for a base price and an incentive price for gas exported to the United States. The base price would remain at $4.40 Mcf and apply to 50 percent of the volume of gas specified in supply contracts. The incentive price of $3.30 Mcf compares with $3.70 Mcf for U.S. domestic new (NGPA sec. 102) gas and is designed to retain (or expand) Canada's long-run share of the U.S. natural gas market. The incentive price would apply to the volume of gas supplied above the base quantity. Currently, American gas pipeline companies having Canadian supply contracts are buying essentially the base volume and in the short-run would not be able to market any significant additional quantity of gas because the average of the base and incentive price governs the pipelines' cost, and the demand for natural gas at best is *flat*, given prevailing prices of residual oil.

The solution may be for Canada to adopt a multiple pricing strategy; e.g., quote a price of $3.75 to *new* importers of Canadian gas;[4] hold the line on the price of gas already specified in contracts with U.S. importers, if the gas is to be marketed in the New England and northeastern states where the price of oil is high and the delivered price of domestic natural gas is also considerably above average; reduce the price of gas to be distributed in western and north central states where residual oil competes effectively with gas for use as boiler fuel. "Cnadians must realize [that] their gas must be priced like gas produced in the U.S. Although Canada accounts for only five percent of U.S. supplies [of natural gas] overall, some areas, such as California and the Midwest, import 20 percent to 40 percent of their gas from across the border. So high Canadian prices add to the woes of U.S. pipelines, which are [also] coping with price [acceleration and take or pay clauses] built into their long-term contracts for domestic gas."[5]

Because 41 percent of the gas supplied by northwest Pipeline comes from Canada, northern Nevada and other northwestern markets supplied by the company have already absorbed much of the price increase generally anticipated if deregulation becomes a reality.[6]

In sum, the effect of deregulation on the northern Nevada market is not expected to be as great as that on markets supplied exclusively from U.S. domestic sources of gas.

In southern Nevada the price of gas in residential end use was moderately below average for the U.S. as of September 30, 1982. (See below, "How High is Horrendous?")

The Northern Division of Southwest has storage ("peak shaving") capacity represented by a liquefied natural gas (LNG) facility near Lovelock (Pershing County) and a liquefied propane gas (LPG) facility near Reno. These facilities are designed to ensure uninterrupted gas service to residential and commercial customers during sustained peak demand days. At present, the LNG plant also has capacity to meet peak demands of industrial gas customers (of the noninterruptible category). The LNG plant is the Northern Division's prime peak shaving alternative because (1) it is less expensive to operate than the LPG facility and (2) gas supplied by the LNG plant is fully compatible with gas in the pipeline system. Propane burns much hotter and can provide only up to 30 percent of the pipeline's shortfall. The LNG plant is leased by Southwest, following a sale and lease back transaction.

El Paso Natural Gas operates 9300 miles of transmission pipelines and 12,000 miles of field gathering and supply lines. The company's network of pipelines extends from central and western Texas through New Mexico and Arizona. In addition to supplying gas in these three states, El Paso also serves California, southern Nevada and Oklahoma through interconnections with other pipeline companies. El Paso Natural Gas buys approximately 80 percent of its gas supply requirements according to terms of some 5200 long-term contracts extending to January, 1990, most of which cannot be terminated without approval of the FERC.[7] Mexico is also a source of gas for the El Paso pipeline system; the company purchases 15 percent of the total volume of gas exported from Mexico to the United States at the $4.40 Mcf price allowed for Canadian gas.

In 1981, 20 percent of the gas supply for the El Paso interstate pipeline system was from reserves owned by the company's exploration subsidiary. El Paso Exploration produces gas in the Anadaro Basin of Texas and Oklahoma, but this is mostly deregulated high-cost NGPA sec 7 gas from below 15,000 feet. Other areas of El Paso leaseholds, exploration, and production are: the Texas-Louisiana Gulf Coast (onshore and offshore), including the Tuscaloosa Trend; the Permian Basin (of Texas and New Mexico); the San Juan Basin (of northwestern New Mexico and southern Colorado); and the Overthrust Belt of the Rocky Mountain states area, a potential source of high-cost gas.

As of December, 1981, El Paso estimated proved reserves of gas dedicated to interstate commerce at 16.7 Tcf, representing proved reserves of the El Paso Exploration subsidiary and those of producers supplying El Paso on long-term contracts. Based on the current rate of consumption by El Paso's wholesale and end use customers, the 16.7 Tcf of proved reserves provided a life index of 12.2 years at year end, 1981, appreciably better than the average 10.0 years for the natural gas industry as a whole.[8]

Seventy-nine percent of the gas supplied by the El Paso Natural Gas interstate pipeline system is sold on long-term contracts to Southern California Gas Company and to Pacific Gas and Electric Company for resale to end users in California. Only 15 percent of the El Paso supply is distributed for resale east of California in Arizona, southern

Nevada, New Mexico, Colorado, Utah, Oklahoma and western Texas. Six percent of El Paso's gas supply is sold directly to industrial customers east of California. El Paso's sales for resale to Southern California Gas and Pacific Gas and Electric, at points of interconnection of pipelines along the California-Arizona border, represent more than 50 percent of the gas consumed in California. Therefore, El Paso has established a large storage capacity to meet winter peak demand.[8]

The rate designs of Northwest and El Paso gas transmission pipeline companies provide for commodity and demand charges. The purpose of a demand (capacity) charge is to provide revenue stability for the transmission companies.

Prior to the gas supply problems of 1976-1977, Southwest purchased its entire supply of natural gas for its northern Nevada system from the Northwest Pipeline Company and relied exclusively on the El Paso pipeline system for gas to supply the southern Nevada market. Currently, Southwest purchases relatively small volumes of natural gas directly from producers in Utah, Colorado and New Mexico. Therefore, like many gas transmission companies, Southwest operates at all three levels of the gas industry: production, transmission, and distribution.

How High is "Horrendous?"

Management of gas utility companies choosing to participate in a comparative bill print-out submitted data to the American Gas Association (AGA). The print-out was produced by the AGA computer, based on 105 residential gas tariffs, assuming various therms of service, ranging from 10 to 1,000 therms per month. The computer print-out lists gas utility bills based on rates in effect as of September 30, 1982. This writer arrayed the 105 bills in descending order of cost, assuming a monthly residential consumption of 100 therms of gas. The results are presented in Table 1, showing residential bills for gas utility service in various geographical locations of the U.S. based on the AGA print-out. As indicated by the table the cost of residential gas service is highest in the New England states and in New York and New Jersey, reflecting largely the cost of transmitting gas long distances by pipeline systems. The cost of gas is high in the Pacific Northwest and Rocky Mountain states because of the distributor's mix of a considerable percentage of high-priced gas from Canada.

On the average, the bills for natural gas service are lowest in southern states because of proximity to the principal oil and gas fields of the 48 contiguous states. The residential bill of Kansas Power and Light Company for use of 100 therms of gas, at $29.00, was the lowest of the total of 105 bills represented in the AGA print-out; by contrast, the bill of the Connecticut Natural Gas Company, at $90 for 100 therms per month was the highest. The average was $59 per month. The bill of Southwest Gas for its northern Nevada service territory was slightly above average at $61 per month (ranked no. 40). The cost of 100 therms of gas in Southwest's southern Nevada territory was moderately below average at $51 (ranked no. 78).

A review of Table 1 reveals many departures from the pattern of high bills in the Northeast and low bills in the southern states. Apparently the exceptions are explained mainly by variations in the cost of the gas mix of the distributor utility company. The aberrations are not surprising in view of disparities of cost of natural gas (old, new, Canadian and deregulated categories), and the "migration" of gas production to western states, e.g., Colorado, Montana and the Dakotas.

Sierra Pacific's monthly bill for residential use of 100 therms of gas (not included in the AGA print-out) was $68 as of September 30, 1982, moderately higher than the $61 bill in northern Nevada outside of the Truckee Meadows. Since September 30, Sierra's cost of gas (supplied by Southwest) increased sharply and consequently, as of December, 1982, the bill for residential use of 100 therms of gas had risen to $80 per month. Subsequently, Northwest Pipeline cut the price of gas, and Southwest passed the reduction on to Sierra. Therefore, Sierra's monthly bill for 100 therms of gas in residential use is $67 as of April 1, 1983, a trifle below the $68 per month for September of the preceding year.[9] The 11 percent cut in the price of gas from Canada on April 12 has made possible an additional reduction in Sierra's price of gas to its customers.

The higher prices consumers pay for natural gas utility service in northern Nevada compared with gas prices in the southern counties of the state are explained mainly by the higher prices Southwest pays Northwest Pipeline (Northern Division supplier) compared with prices paid the El Paso pipeline system (Southwest's Southern Division supplier). As the tabulation below indicates, Northwest Pipeline prices are higher than those of El Paso, reflecting Northwest's mix of high cost gas from Canada. The trend of rising prices charged by gas transmission companies supplying Nevada explains rising cost of gas utility service in the state, 1978-1983.

Wholesale Prices Mcf

Year	Northwest Pipeline	El Paso
1978	$1.97	$1.44
1980	3.59	2.31
1982	4.55	3.57
April, 1983	4.14	3.97

Sources: Southwest Gas Corporation, *Annual Report*, 1982, p. 32.

As this article is being written, some reductions in wholesale prices are anticipated.

The Energy Conservation Effect in the Truckee Meadows

Residents of the Truckee Meadows have responded to rising bills for space heating with natural gas by adopting

TABLE 1

Comparison of Cost of Residential Gas Service by Utility Company and State

	Utility Company	State in Which Gas is Distributed	Residential Bill for 100 Therms of Gas (per month)
1.	Connecticut Natural Gas Co.	Connecticut	$ 90
2.	South Connecticut Gas Co.	Connecticut	88
3.	Southwest Gas Corporation	Northern California	82
4.	Commonwealth Gas Co.	Michigan	82
5.	Consolidated Edison	New York	81
6.	Elizabethtown Gas Co.	New Jersey	81
7.	Boston Gas Co.	Massachusetts	80
8.	Providence Gas Co.	Rhode Island	80
9.	Bay State Gas Co.	Massachusetts	79
10.	Gas Service, Inc.	New Hampshire	79
11.	Berkshire Gas Co.	Massachusetts	79
12.	Southwest Gas Corp.	Central Arizona	79
13.	Philadelphia Gas Works	Pennsylvania	77
14.	Central Hudson Gas & Electric	New York	77
15.	Southwest Gas Corp.	Southern California	72
16.	Montana-Dakota Utilities	Minnesota	72
17.	Columbia Gas	Maryland	72
18.	City of Richmond	Virginia	70
19.	Public Service Electric & Gas	New Jersey	70
20.	Philadelphia Electric Co.	Pennsylvania	70
21.	Washington Gas Light Co.	Washington, D.C.	69
22.	U G I Corp.	Pennsylvania	68
23.	Northern States Power Co.	Northern Minnesota	68
24.	Northern States Power Co.	North Dakota	67
25.	Cascade Natural Gas Corp.	Oregon	67
26.	Northwest Natural Gas Co.	Oregon	67
27.	San Diego Gas & Electric Co.	California	67
28.	Pacific Gas & Electric Co.	California	66
29.	National Fuel Gas Distribution Co.	New York	65
30.	Cascade Natural Gas Corp.	Washington	65
31.	Madison Gas & Electric Co.	Wisconsin	64
32.	Northwest Natural Gas Co.	Washington	64
33.	Orange & Rockland Utilities	New York	63
34.	Commonwealth Gas Co.	Massachusetts	62
35.	Pike County Light & Power	Pennsylvania	62
36.	Northern States Power	Central Minnesota	61
37.	South Carolina Electric & Gas	South Carolina	61
38.	Public Service Co. of Colorado	Colorado	61
39.	Wisconsin Gas Co.	Wisconsin	61
40.	**Southwest Gas Corp.**	**Northern Nevada**	**61**
41.	Baltimore Gas & Electric	Maryland	60
42.	Columbia Gas	Kentucky	60
43.	Louisiana Gas Service	Northern Louisiana	60
44.	Columbia Gas	West Virginia	60
45.	Rochester Gas & Electric	New York	60
46.	National Fuel Gas	Pennsylvania	60
47.	Long Island Lighting Co.	New York	60
48.	Delmarva Power & Light	Northern Delaware	59
49.	Columbia Gas	Pennsylvania	59
50.	Southwest Gas Corp.	Southern Arizona	59
	AVERAGE BILL	**CONTINENTAL USA**	**59**
52.	Lone Star Gas Co.	Texas	59
53.	New York State Elect. & Gas Corp.	New York	59
54.	Niagara Mohawk	New York	$ 58
55.	Southern California Gas	California	58
56.	Dayton Power & Light	Ohio	58
57.	Southern Union Gas	Texas	58
58.	Entex, Inc.	Texas	57
59.	New Jersey Natural Gas Co.	New Jersey	57
60.	New Orleans Public Service	Louisiana	56
61.	Hope Natural Gas	West Virginia	55
62.	Arizona Public Service Co.	Arizona	54
63.	Louisiana Gas Service	Southern Louisiana	54
64.	Minnegasco, Inc.	Minnesota	54
65.	Columbia Gas	New York	54
66.	Wisconsin Public Service Corp.	Wisconsin	53
67.	Southeast Michigan Gas Co.	Michigan	52
68.	Michigan Gas Utility Co.	Michigan	52
69.	Alabama Gas Corp.	Alabama	52
70.	Cincinnati Gas & Electric Co.	Ohio	52
71.	Peoples Natural Gas Co.	Iowa	52
72.	Central Illinois Public Service Co.	Illinois	52
73.	Columbia Gas	Virginia	52
74.	Carolina Natural Gas Corp.	South Carolina	52
75.	Michigan Consolidated Gas Co.	Michigan	51
76.	Nashville Gas Co.	Tennessee	51
77.	Louisiana Gas Service	Central Louisiana	51
78.	**Southwest Gas Corp.**	**Southern Nevada**	**51**
79.	Iowa Public Service Co.	Iowa	51
80.	Wisconsin Public Service Corp.	Michigan	50
81.	Illinois Power Co.	Illinois	50
82.	Atlanta Gas Light Co.	Georgia	49
83.	Indiana Gas Co.	Indiana	49
84.	Central Illinois Light Co.	Illinois	49
85.	Citizens Gas & Coke Co.	Illinois	49
86.	Peoples Gas Light & Coke Co.	Illinois	49
87.	East Ohio Gas Co.	Ohio	48
88.	Consumers Power Co.	Michigan	47
89.	Kukumo Gas & Fuel Co.	Indiana	47
90.	Gas Co. of New Mexico	New Mexico	47
91.	Iowa Electric Light & Power Co.	Iowa	47
92.	Equitable Gas Co.	Pennsylvania	46
93.	Central Illinois Public Service	Northern Illinois	46
94.	Northern Indiana Public Service Co.	Indiana	45
95.	Western Kentucky Gas Co.	Kentucky	44
96.	Montana-Dakota Utilities	North Dakota	44
97.	Corning Natural Gas Corp.	New York	44
98.	Metropolitan Utility of Omaha	Nebraska	44
99.	Memphis Light, Gas & Water	Tennessee	44
100.	Southern Union Gas, El Paso	Texas	44
101.	Montana-Dakota Utilities	Montana	43
102.	Montana-Dakota Utilities	South Dakota	42
103.	Oklahoma Natural Gas Co.	Oklahoma	41
104.	Montana-Dakota Utilities	Wyoming	35
105.	Kansas Power & Light Co.	Kansas	29

Source: Adapted from a print out provided by Southwest Gas Corporation and produced by the American Gas Association, Arlington, Virginia.

various measures of conservation (lowering thermostat settings, increased use of insulation materials and weather stripping) and by supplementing gas heat with heat from wood-burning stoves. The effect of these measures on the volume of natural gas demanded by residents of the Truckee Meadows (essentially Reno and Sparks, Washoe County) is summarized quantitatively as follows:[9]

Residential Use of Natural Gas (Winter Months)
(Truckee Meadows Gas Service Territory of Sierra Pacific)

Month/Year	Therms (thousands)	Revenue (thousands)
December 1978	5,183	$1,866
January 1979	6,222	2,231
December 1980	4,223	3,100
January 1981	4,106	3,029
December 1982	4,618	3,346
January 1983	5,001	3,978

In December 1978, Sierra's residential customers in the Truckee Meadows paid $1,866,000 for using 5,183,000 therms of gas. Four years later, in January 1983, the Truckee Meadows residents consumed a slightly smaller number of therms, 5,001,000, and paid $3,978,000, more than twice the cost of the 5,183,000 therms used in December 1978. At lower prices, apparently residents responded to a cold January 1979, by sharply increasing their demand for natural gas from 5,183,000 therms to 6,222,000 therms, as shown in the tabulation.

Over the same period, December 1978 to January 1983, the cost of natural gas service for a typical household in Reno/Sparks increased as indicated by the following tabulation:[9]

Month/Year	Therms*	Dollars**
December 1978	123	$44.32
January 1979	146	52.51
December 1980	89	65.67
January 1981	87	64.11
December 1982	95	68.77
January 1983	103	75.85

*The month's residential therms demanded ÷ the number of residential customers.
**The month's residential revenue ÷ the number of residential customers.

This tabulation confirms the pattern already observed. When the price of natural gas service was substantially lower, residents of Reno/Sparks responded to a cold January 1979 by increasing use of gas for space heating rather sharply, on the average. But as the price of natural gas increased, the conservation effect began to work, as indicated by the apparent self-discipline on limiting the use of gas by the typical Reno/Sparks household.

Finally, we find the working of the conservation effect in a decline of per capita residential use of natural gas over the years 1978 to 1982, inclusive, in the Truckee Meadows gas service territory of Sierra Pacific.[10]

Residential

Year	Therms (thousands	Dollars (thousands)	Population of Reno/Sparks	Yearly Use of Natural Gas: Residential Therms Per Capita
1978	31,030	$10,394	124,171	250 therms
1980	32,649	16,087	141,536	230 therms
1982	33,064	21,276	150,211	220 therms

As indicated by the tabulation, per capita residential use of natural gas in Reno/Sparks declined by 12 percent, from 250 therms per capita in 1978 to 220 therms per capita in 1982, while revenue generated by residential consumption of gas more than doubled. When we attribute the decline in per capita residential use of natural gas to the conservation effect induced by rising prices of gas utility service, we implicitly assume that on the average the "cold" season weather of 1982 was approximately as cold as that of 1978.

Boiler Fuel Use of Gas Subsidizes Residential and Small Commercial Space Heating

In the early 1960's, demand for large volumes of natural gas for use as fuel in firing steam electric generators and in furnaces of large-scale mining and metal refining operations provided the revenue potential which made it possible for Southwest Gas Corporation to attract the capital requirements for building its large pipeline network. The large volume, high load factor customers subsidize the low volume, low load factor (highly seasonal) residential and small commercial customers' demand for gas for space heating. Sustained by revenue from sales of gas for boiler fuel to power plants and industry, the transmission lines of Southwest were built through areas with low population density, on the average. Subsequently, the impressive increase in the population of Clark County has contributed revenue stability to the Southwest Gas Corporation Nevada operations. However, the Southwest system is still characterized by a residential and small commercial load below average for the gas utility industry, and conversely, a power plant and industrial load above average.

Transmission of gas to distributors for resale and to military bases is a relatively small percentage of the Southwest load, accounting for 10 percent of system volume of gas sold in 1982.

Loss of Large Volume Steam Boiler Customers Southwest Gas Pipeline System[11]

From 1980 to 1982, large volume industrial and power plant customers of the Southwest system have responded to the sharply rising price of natural gas and the decline of the price of No. 6 residual oil in 1982 by substituting this high sulfur content oil for firing industrial boilers and electric generating plants.

When the Btu price of residual oil was substantially higher than that of natural gas, Nevada Power consumed as boiler fuel in steam electric generating plants approximately one-half of the volume of gas distributed by the Southern Division of Southwest. But during 1982, Nevada Power substituted residual oil for gas as boiler fuel in power plants. As a result, the annual rate of gas consumption by Nevada Power

TABLE 2

Analysis of Annual System Sales (MMcf)
California, Arizona and Nevada

Southwest Gas: Northern and Southern Divisions

	12 Months Ending			
	May, 1980		May, 1982	
Category of Customer	Volume of Gas in MMcf	Percent of Total	Volume of Gas in MMcf	Percent of Total
Residential and Small Commercial	21,808	18.7%	23,690	22.9%
Large Commercial	11,517	9.9%	10,380	10.0%
Industrial	16,151	13.8%	10,058	9.7%
Electric Generation	56,639	48.4%	49,006	47.4%
Military and Resales	10,806	9.2%	10,164	10.0%
Total System Sales (MMcf	116,921	100.00%	103,298	100.0%

Source: Adapted from Exhibit 1 of *Impact of the NGPA on Current and Projected Natural Gas Markets*, before the FERC. "Comments by Southwest Gas Corporation on Notice of Inquiry."

declined from 24 MMcf in December 1981 to 17 MMcf in May 1982. The trend in terms of sales of gas in millions of cubic feet (MMcf) is summarized in Table 2 for the 12 months ending May, 1980 to the 12 months ending May, 1982. Over this period the volume of gas for firing boilers at steam electric generating plants declined from 56.6 MMcf to 49.0 MMcf, reflecting largely the switch by Nevada Power and Sierra Pacific from gas to lower-cost residual oil for their steam electric generating boilers. Also, in 1982, Sierra Pacific's new base load coal-fired generating capacity came on line. Over the same two-year period, the relative importance of power plant customers, measured by volume of gas consumed, declined from 48.4 to 47.4 percent of total system load representing an absolute decline of 7.6 MMcf.

Most of the industrial and large commercial customers of Southwest also have dual fuel (oil/gas) boilers. Therefore, due to fuel switching from gas to oil or coal and to economic depression, industrial boiler fuel customers consumed 9.7 percent of the volume of gas distributed by Southwest during the year ending May 1982, down from 13.8 percent two years earlier, a relative decline of 4.1 percent and an absolute decline from 16.1 MMcf to 10.0 MMcf. The combined decline in gas consumption by power plants and industrial customers (13.7 MMcf) represents a decline of 11.7 percent in the volume of gas sold by the Southwest system (Table 2).

The residential and small commercial category of customers increased its consumption of gas (1980-1982) by a modest 1.9 MMcf or by 8.6 percent.

As of May 1982, the Southwest Gas system had a combined large commercial, industrial, and electric generating load of 67.1 percent (derived from Table 2). Therefore, more than two-thirds of the system load is subject to wide variations in demand due to fuel-switching by customers having dual-fuel capacity boilers. The Southwest tariff includes demand and stand-by charges to sustain revenue and discourage fuel-switching within limits. The risk is that when the price of gas per Btu remains above the Btu price of residual oil, many customers having fuel switching capability will leave the gas utility supply line permanently.

In Nevada, Arizona and California oil, natural gas and electricity compete for space heating customers. Electric heating units with heat pumps provide space heat in new residential housing.[11] The competitive strength of electricity for space heating has increased in recent months because above normal precipitation in the northwestern states has made possible the sale of surplus hydropower at discounted prices in Nevada, Arizona and California. Substitution of hydroelectric power for fuel-generated electricity also helps to explain the decline in sales of natural gas to power plants.

The national average pricing structure for residual oil and natural gas is summarized in Tables 3 and 4. The price of residual oil trended upward through 1981, but turned down in 1982: at wholesale, from $27.07 per barrel, average in 1981, to $25.72 in October 1982; at retail, from $28.57 per barrel, average in 1981, to $26.59 in October 1982 (Table 3). However, as indicated in Table 4, wellhead prices of natural gas and prices of gas delivered to power plants continued to rise: wellhead, from $1.98 Mcf, average in 1981, to $2.55 Mcf in October 1982; power plant delivered price, from $2.91 Mcf, 1981, to $3.68 Mcf, October 1982. These divergent trends during 1982 proved to be critical, leading to a disequilibrium in the market for gas for use as boiler fuel by industry and power plants. It is also notable (Table 4) that after the NGPA was enacted (1978) increases in natural gas prices accelerated.

The vulnerability of a gas distribution system to the adversities of fuel switching is great as long as the price of residual oil is under competitive pressure, especially in view of the slow response of gas producers and major gas transmission pipelines to the changing realities of the marketplace. When large volume steam boiler fuel customers leave the gas supply system, there remains a smaller number of users over which to spread fixed costs. The rate of system utilization (the load factor) declines, thus raising the break even point of the gas distributor. The result is higher prices for the remaining customers to compensate an allowable rate of return for the gas system. All categories of customers contribute to revenue stability and profitability of gas utility systems. Most of the gas rate structures currently in use impose substantial customer and standby charges (in addition to commodity rates) on large volume power plant, industrial and commercial customers.

TABLE 3

Residual Fuel Oil Prices

	1% Sulfur Price Per Barrel, Excluding Taxes	
YEAR	Wholesale	Retail
1976	$ 9.98	$ 10.43
1977	11.31	12.27
1978	10.73	11.70
1979	15.89	16.44
1980	20.77	22.11
1981	27.07	28.57
1982 (October)	25.72	26.59

Source: *Monthly Energy Review*, Energy Information Administration, U.S. Department of Energy, Washington D.C., February, 1983, p. 90.

TABLE 4

Rising Trends in Prices of Natural Gas

YEAR	IN MCF Price at Wellheads	Delivered Price at Power Plants
1973	$ 0.22	$ 0.35
1975	0.45	0.77
1977	0.79	1.33
1978	0.91	1.48
1979	1.18	1.80
1980	1.59	2.28
1981	1.98	2.91
1982 (October)	2.55	3.68

Source: *Monthly Energy Review*, Energy Information Administration, U.S. Department of Energy, Washington D.C., February, 1983, p. 91.

TABLE 5

Analysis of Annual System Revenues
California, Arizona and Nevada

Southwest Gas: Northern and Southern Divisions

Category of Customer	12 Months Ending May, 1980 Revenue (Millions)	Percent of Total	May, 1982 Revenue (Millions)	Percent of Total
Residential and Small Commercial	$ 84,409	24.4%	$124,042	29.0%
Large Commercial	36,606	10.6%	47,613	11.1%
Industrial	42,902	12.4%	39,353	9.2%
Electric Generation	143,794	41.6%	169,131	39.6%
Military and Resales	37,832	11.0%	46,971	11.1%
Total System Revenues	$345,543	100.0%	$427,110	100.0%

Source: Adapted from Exhibit 2 of *Impact of the NGPA on Current and Projected Natural Gas Markets*, before the FERC. "Comments by Southwest Corporation Gas on Notice of Inquiry."

Table 5 summarizes the changing relative share of burden for contributing revenue by category of customer. Because of the reduction in use of gas by large industrial and electric generation customers, the percentage of total system revenue contributed by each of these two groups has declined: industrial, from 12.4 percent of total system revenue (1980) to 9.2 percent (1982); electric generation, from 41.6 percent (1980) to 39.6 percent (1982). As the table indicates, over the same two-year period, the relative share of residential and small commercial customers burden for contributing Southwest Gas system revenue has risen from 24.4 percent to 29 percent. The reduction in usage of gas by the industrial and electric generation customers explains the major part of this rise in the relative importance of revenue contributed by the residential and small commercial category of customers. The increasing population in Southwest's gas service territory is also a factor contributing to this result.

Considering the Nevada market in isolation, the residential and commercial load as a percentage of total load for the state is smaller than the comparable percentage (22.9%, Table 2) for the Southwest Gas system as a whole. Based on 1981 Nevada sales of gas in cubic feet, residential sales were only 11.4 percent of total volume and residential and commercial demand combined was 17 percent of total system load in Nevada. Serving a large residential and commercial market in Tucson, Arizona, contributes to the revenue stability of the Southwest system as a whole.

Sierra Pacific[12]

Sierra distributes gas at a uniform commodity price and at a uniform customer charge of $2.50 per month to its residential, commercial and industrial customers. There are a few large industrial users of gas in Sierra's Truckee Meadows service territory, e.g., Viking Metallurgical Corporation, Verdi.

The commodity price Sierra pays its Southwest gas pipeline supplier has risen from $2.07 Mcf in January 1978 to $4.59 Mcf, effective January 1983, an increase of $2.52 Mcf over the five year period, or by 122 percent. The commodity rate was reduced to $4.38 Mcf, effective April 1, 1983 and this reduction in the price of gas for resale made possible the cut in Sierra's bill for residential use of gas, as noted above.

Gas and oil compete for large commercial customers in the Truckee Meadows, as elsewhere. In March 1983, MGM Grand Hotel, Reno, switched from gas to oil for space heating. Other large hotel-casinos also have back-up capacity to sutstitute oil for gas and therefore possible fuel switching by its customers poses a problem for Sierra similar to that of Southwest.

The Future of the Natural Gas Industry

Given the *current* structure of prices of energy, it is doubtful if natural gas can compete effectively with oil for use as steam boiler fuel, and clearly, coal has a distinct cost advantage over alternative fuels. Over the decade of the 1980s, it is probable that (1) demand for gas for use as steam boiler fuel will trend lower and (2) the demand for gas in higher value industrial uses will increase, such as natural gas for use as feedstock in production of fertilizer, ammonia, and antifreeze, for example, and for use in processes where temperature control is critical, as in production of glass and metallic paint. Gas probably will continue to hold a large share of residential and small commercial demand for space heating. Customers of this category generally lack fuel switching capability.

The incremental pricing provision of the NGPA is that, to a limit, high cost supplementary (i.e., incremental) supplies of gas must be reflected *exclusively* in prices industrial customers pay for gas. But the act also provides that the FERC shall have discretionary power to grant exemptions from incremental pricing in hardship cases, i.e., where gas suppliers apparently will lose industrial customers if the incremental pricing rule is applied. In recent months incremental pricing has been circumvented by the FERC and by many state public service commission by liberal grants of exemptions, thus providing for flexibility in the industrial rate structure to help gas utility companies retain large volume boiler fuel customers at a time when there is strong competition from residual oil.

"Straws in the Wind"

The problems of the natural gas industry were discussed in the first article of this series of two. In sum, gas producers, and to a lesser degree, major gas transmission pipeline companies, do not adjust readily to the competitive constraints of gas markets. Companies distributing gas to end users, e.g., Southwest Gas, are the first to recognize competition from alternative fuels. However, there are a few encouraging "straws in the wind," suggesting that upstream entities in the gas industry are beginning (although slowly) to come to grips with the problem of loss of steam boiler fuel customers and the consequences of this loss.

First, oil and gas producers are beginning to recognize the significance of loss of large volume users of gas. C.J. Silas, President and Chief Operating Officer of Phillips Petroleum Company recently commented "when large gas users desert the system, then there are fewer customers left to pay the fixed costs of the pipelines and the utilities. So gas bills go up and this may drive more customers out of the market. It's a vicious circle."[13]

Commenting on the company's gas pipeline operations, John G. McMillian, Chairman and Chief Executive Officer of Northwest Energy Company observed that "the cost of gas now exceeds the cost of residual fuel oil and sales have been lost due to this price competition."[14]

Second, in recognition of the competition from alternative fuels, remedial policy must be formulated and implemented. There are indications that the gas industry can respond to changing market conditions. For example, "since April 1982, Northwest Pipeline has reduced its cost of purchased gas by approximately $140 million or 42¢ per MM Btu. This equates to a 10% reduction over the past year, primarily as a result of Northwest Pipeline increasing its production of lower cost domestic gas and reducing its takes of Canadian gas."[15]

Providing "incentive," i.e., discounted natural gas prices for industrial and power plant steam boiler fuel customers is another policy which may be implemented with the FERC approval, to halt the departure of large volume steam boiler fuel customers from gas pipeline systems.[16] In this regard, it is notable that, "other things being equal," as industry and power plants switch from gas to residual oil, the rising demand for oil should cause its price per Btu to rise, thus mitigating the competitive pressure on gas.

Apparently some major transmission pipeline companies have found enough flexibility in gas purchase contracts to substitute lower cost gas for high cost sources. In March 1983, Northwest Central Pipeline Company, which distributes gas at the wholesale level in Kansas, Missouri, Oklahoma, Texas, and Nebraska, filed for a 25 percent reduction in its natural gas prices, hoping thereby to reverse the trend toward use of residual oil for steam boiler fuel instead of gas. Also, the proposed rate reduction, which [became] effective April 23, will lower the average residential gas bill by approximately $10.75 per month. The cut in gas prices is made possible by "lower costs from substituting lower-priced gas for high-cost gas in [the company's] purchase mix."[17]

In April 1983, the Columbia Gas transmission pipeline system announced that it is invoking the *force majeure* clause in its gas purchase contracts with producers. A *force majeure* clause relieves a transmission company from complying with certain obligations of a gas purchase contract if the requirements would work undue hardship on the company due to circumstances beyond its control. In this instance, the autonomous circumstances cited by Columbia Gas are "warmer than normal weather this winter and the recession . . . [therefore] gas usage has dropped to abnormally low levels, leaving inventories very high."[18] The company is making across-the-board cutbacks in gas purchases to about 50 percent of normal deliveries.

Columbia also announced that it will pay only 110 percent of the Btu equivalent price of No. 2 (distillate) fuel oil for *deregulated* gas for which it has purchase contracts. The company anticipates that these policy decisions will result in lower gas prices for 71 retail gas distributors operating in eight states.

Subsequently, United Gas Pipeline, a subsidiary of United Energy Resources, Inc., also invoked the *force majeure* clause in its contract to buy Canadian gas.

In view of the weakened competitive position of natural gas in the marketplace, it would be short-sighted policy for gas producers to insist on enforcing "take or pay" and price acceleration clauses in their contracts to supply pipeline companies. If gas producers do not sacrifice short-run advantages of terms specified in current supply contracts with pipeline companies, in the long-run most industrial and power plant steam boiler fuel customers will be lost to competing sources of energy. "A dozen bills now before Congress would require . . . high-cost contracts to be renegotiated or invalidated."[19]

Deregulation is Sound Policy

According to the Department of Energy (DOE), 21.4 Tcf of gas were added to U.S. proved reserves in 1981. This addition exceeded 1981 consumption of gas by 14 percent and represents the largest spread between additions to reserves and consumption since 1967 excluding Alaska. The results for 1981 compare with additions to reserves averaging only 48 percent of consumption from 1968 to 1978. The current gas surplus of 2.7 Tcf is explained by fuel switching, the effect of energy conservation, and constraints on demand for natural gas provided for in the Power Plant and Industrial Fuel Act of 1978. However, as explained in Part I of this study, a DOE report estimates substantial declines in U.S. gas production after 1985. This suggests a need to provide incentives to the oil and gas industry to explore for and develop new hydrocarbon deposits. Existing federal price controls (NGPA of 1978) on wellhead prices of natural gas are inconsistent with long-run need to expand gas production to forestall the recurrence of supply shortfalls.

Summary and Conclusion

The cost of gas in household use in Nevada approximates the level which is average for the U.S. as a whole. Residential bills for use of gas are moderately above the national

average in northern Nevada and moderately below that average in southern Nevada.

Demand for high value industrial uses of natural gas is expected to increase, offsetting partially the defection of large volume industrial, commercial and power plant steam boiler customers to alternative fuels. The consequences of loss of customers having fuel-switching capability apparently will be rising capacity and standby charges for the remaining steam boiler fuel customers to provide for revenue stability and compensate fixed costs and an allowable rate of return on underutilized gas transmission and distribution systems. Other things being equal, residential and small commercial customers and other users of high value gas will share in the burden for contributing additional revenue to offset loss of gas customers due to fuel switching.

Sierra Pacific, the distributor of gas in Truckee Meadows communities, is a Southwest Gas customer. If Southwest continues to lose revenue because of the kind of fuel switching we have discussed, the customer (or capacity) charge and the commodity rate Sierra pays for gas can be expected to rise and result in higher prices for gas in the Truckee Meadows. The consequence may be additional fuel switching by Sierra's large commercial customers and increased revenue burdens thrust on residential and small commercial users of gas in the Truckee Meadows.

In "straws in the wind," this writer, perhaps heroically, looked for encouraging changes in the markets for natural gas. Hopefully, threats of Congressional action to require renegotiation of upstream long-term gas supply contracts and competitive pressure from alternative fuels will persuade producers to seek a market clearing price for natural gas.

Because 41 percent of the gas supplied by the Northwest Pipeline system (1982) was imported from Canada, northern Nevada and other northwestern markets have already borne the brunt of high prices for gas. If the optimism expressed in "straws in the wind" has validity, the price of gas may be expected to trend downward even with deregulation, especially in markets where gas is already priced above the national average and where there is competition from residual oil. Regulatory commissions should provide for flexibility in gas rate structures to permit distributors and gas transmission pipeline systems to lower price to meet competition from alternative fuels. In the meantime, it is notable that there is nothing pernicious in the price a *downstream* entity (i.e., a gas distributor) must charge for gas at the burner tips.

Footnotes:

[1]Moody's Public Utility Manual, 1982, Northwest Pipeline Company, subsidiary of Northwest Energy.

[2]*The Wall Street Journal,* March 18, 1983.

[3]*The Wall Street Journal,* April 12, 1983.

[4]Cf. *Business Week,* February 28, 1983, p. 47.

[5]*Ibid.*

[6]After the natural gas supply shortfalls of 1976-1977, Northwest Pipeline entered into "take or pay" contracts with oil and gas producers of Canada. At one time, 70 percent of the Northwest Pipeline supply of gas was imported from Canada. For a discussion of the rationale of "take or pay" contracts, see *Nevada Review of Business & Economics,* Winter 1982-83, p. 29.

[7]Moody Public Utility Manual, 1982, El Paso Natural Gas, Subsidiary of El Paso Company.

[8] Based on Moody's Public Utility Manual, 1982, El Paso Natural Company.

[9]Data provided by Edward J. Miller, Senior Rate Analyst, Sierra Pacific Power Company.

[10]Data in this section provided by (or based on) William A. Claerhout, General Attorney, Southwest Gas Corporation, in "Comments by Southwest Gas on Notice of Inquiry" before the Federal Energy Regulatory Commission.

[11]Data in this section provided by (or based on) William A. Claerhout, General Attorney, Southwest Gas Corporation, in "Comments by Southwest Gas on Notice of Inquiry" before theFederal Energy Regulatory Commission.

[12]Data provided by Edward J. Miller, Senior Rate Analyst, Sierra Pacific Power Company.

[13]Phillips Petroleum Company, *Newsreport,* Fourth Quarter, 1982, p. 7.

[14]Northwest Energy Company, *Annual Report,* 1982, p. 7

[15]*Ibid.* Now that Canada has abandoned its nationalist policy of restriction of exports of oil and gas, market demand in the U.S. has turned soft. This is especially troublesome for Canada because of a huge glut of fuel in Alberta, the largest Canadian producer of oil and gas. *The Wall Street Journal,* March 18, 1983.

[16]"Northwest Pipeline has recently applied to the Federal Energy Regulatory Commission (FERC) for permission to institute a special incentive sales rate for up to 12 billion cubic feet of domestic gas for industrial use. *Any incentive sales, if permitted, will enable our distribution customers* to compete for industrial load which would not otherwise be served by natural gas." Northwest Energy Company, *Annual Report,* p. 8

[17]*The Wall Street Journal,* March 23, 1983.

[18]*The Wall Street Journal,* April 5, 1983.

[19]*Business Week,* February 28, 1983, p. 47.

Trends in Computer Usage in the State of Nevada

*By William J. Corney and John E. Nixon**

Few modern-day inventions have had the impact on business activity as that of the computer. In a brief thirty year period, the computer has gone from a curiosity-piece to a device essential for the survival and growth of many organizations.

In the fall of 1979, the authors' study, "Computer Usage in the State of Nevada," appeared in the *Nevada Review of Business and Economics*. Nevada businesses were surveyed in an attempt to determine, in quantitative terms, the extent of computer usage and to assess the importance of usage patterns found. Since that time the cost of hardware has continued to decline, numerous easy-to-use applications programs have emerged, and special purpose microcomputer products for a wide assortment of uses have been developed.

The current research provides an assessment of this rapidly changing situation, with an objective of finding both the current status and important trends that are developing in computer usage. This is of major importance to Nevada educational institutions that must prepare students for growing opportunities in the computer field. For organizations that use or are considering using computers, this knowledge can provide a basis for comparing their existing or proposed facilities with those of other organizations. Finally, for firms that market computer products, the survey will aid in identifying the status of the current Nevada market for computer products as well as identifying trends that may create new marketing opportunities.

METHODOLOGY

A seventeen question computer usage survey was designed, pretested and mailed to all manufacturers, distributors and wholesalers listed in the 1980 *Nevada State Industrial Directory* published by the state of Nevada, Department of Economic Development and to a randomly selected group of 63 government agencies and services establishments listed in the January, 1982 Las Vegas and Reno telephone directories. The difference between this questionnaire and the one used in the 1979 study was the addition of two questions on firm size and number of employees, and the addition of a "word processing" category in the list of applications. Of the 683 survey instruments mailed, 260 were returned, for a response rate of 38 percent. Concerning those returned, 146 were eliminated from further analysis because they did not possess an on-site computer, leaving a sample of 114 returned questionnaires that provided data on computer usage. Pearson Chi-square contingency tests for independence of categories and Student's t tests for differences between proportions were made on data where appropriate.[1] All tests were performed at the five percent level of significance.

**William J. Corney and John E. Nixon are Associate Professors of Management, College of Business and Economics, University of Nevada, Las Vegas.*

SURVEY RESULTS

Computer System Use and Organization

Of Nevada businesses responding to the survey, 43 percent indicate that they have or use a computer. Of this group, 54 percent have used a computer for five years or less, 24 percent for six to ten years and 22 percent for ten years or more. Table 1 provides details concerning years of computer use and indicates a negligible change in rate of acquisition since the 1979 computer usage survey.

TABLE 1

Years of Computer Use

Years	Percent of Those Responding			
	1982 Survey			
	Manufacturing (n = 89) %	Service (n = 25) %	Combined (n = 114) %	Combined (1979 Survey) %
1 - 5	64	17	54	55
6-10	23	33	24	20
Over 10	13	50	22	25
Total	100	100	100	100

Most service organizations use their computer on more than one shift while manufacturing organizations do not. Data are shown in Table 2. The differences between manufacturing and service are statistically significant, but combined 1982 and combined 1979 are not.

TABLE 2

Number of Working Shifts Computer Used

Number of Shifts	Percent of Those Responding			
	1982 Survey			
	Manufacturing (n = 84) %	Service (n = 25) %	Combined (n = 109) %	Combined (1979 Survey) %
1	87	20	71	71
2	10	40	17	14
3	3	40	12	15
Total	100	100	100	100

Responses indicate that most computer facilities report to an administrative function, as was the case in the 1979 study. However, statistical significance was demonstrated from differences between both manufacturing and service and combined results for the earlier study. Results indicate a definite shift away from accounting function responsibility toward administration. Data are shown in Table 3.

TABLE 3

To Whom Data Processing Manager Reports

Organizational	Percent of Those Responding			
	1982 Survey			
	Manufacturing (n = 76) %	Service (n = 25) %	Combined (n = 101) %	Combined (1979 Survey) %
Administration	65	48	69	57
Finance	7	48	17	18
Accounting	12	4	10	17
Other	16	0	4	8
Total	100	100	100	100

Surveyed organizations were asked to indicate data processing related activities that should be emphasized in university courses. Table 4 summarizes their responses. For manufacturing concerns, the programming activity was viewed as most important, with 61 percent responding. In the service industry, MIS and Systems Analysis were given greatest emphasis, with 71 percent of those surveyed indicating these activities for emphasis.

Although IBM and Burroughs still dominate in terms of computer manufacturers, their percentage of use has dropped to 44 percent (as compared with 66 percent in the 1979 study). As Table 5 indicates, this drop has come primarily from an increase in microcomputer manufacturers' products in use. For example, Alphamicro, Texas Instruments, Triad, and Radio Shack, which were not represented in the 1979 study, accounted for 16 percent of systems in the current survey.

TABLE 4

Suggested Emphasis on University Data Processing Courses

Activity	Percent of Those Responding*			
	1982 Survey			
	Manufacturing (n = 76) %	Service (n = 23) %	Combined (n = 99) %	Combined (1979 Survey) %
Operations	47	20	41	25
Programming	61	40	55	33
MIS	41	72	49	19
Systems Analysis	41	72	49	17

*The 1982 survey allowed more than one category to be checked per respondent, therefore, responses do not add to 100 percent.

TABLE 5

Rank Ordering of Use by Computer Manufacturer

Computer Manufacturer	Percent of Those Responding	
	Combined (1982 Survey) (n = 114) %	Combined (1979 Survey) %
IBM	36	46
Burroughs	8	20
Alphamicro	5	–
Basic Four	4	2
DEC	4	2
Texas Instruments	4	–
Triad	4	–
Univac	4	2
NCR	3	4
Radio Shack	3	–
Compugraphics	3	2
Hewlett Packard	2	2
Quantel	2	2
Control Data	1	4
Honeywell	1	2
Wang	1	2
Sycor	0	2
Other	16	6
Total	100	98*

*Responses do not equal percent due to rounding.

Computer systems are often classified in terms of the secondary storage devices used. Table 6 indicates a major shift in the usage of these devices. Both card and tape systems have fallen off dramatically, from 14 percent to four percent, and 37 percent to 27 percent respectively. While tape and card systems have declined in use, disk systems have increased. In 1979, 66 percent of respondents

indicated that they used disks; in 1982 the percentage has increased to 79 percent. Differences are significant between the 1979 and 1982 studies.

TABLE 6

Usage of Secondary Storage Devices

Device	Combined (1982 Survey) %	Combined (1979 Survey) %
Cards	4	14
Disk	79	66
Tape	27	37
Other	7	5

Use of on-line devices in both manufacturing and service organizations has increased since the previous study while time-sharing has remained relatively stable. Data in Table 7 are statistically significant between the two types of organizations, but not significant between the 1979 and 1982 combined results.

TABLE 7

On-Line and/or Time Sharing Usage

System	Percent of Those Responding			
	1982 Survey			
	Manufacturing (n = 87) %	Service (n = 25) %	Combined (n = 112) %	Combined (1979 Survey) %
On-Line (Yes)	61	96	69	58
Time Sharing (Yes)	16	50	23	24

Types of terminals in use have changed since the last survey. Among the major changes that Table 8 details are: 1) a large increase in the usage of CRT terminals, from 27 percent to 87 percent in manufacturing and from 81 percent to 96 percent in the service industry; 2) a decrease in the use of teletype terminals, from a combined percentage of nine percent to four percent combined usage in 1982; and 3) an increase in the use of point of sale terminals, from a combined two percent of use in 1979 to four percent in 1982. All responses, including manufacturing-service for both years and combined responses for both years, are statistically significant.

Both manufacturing and service organizations use a variety of computer languages. COBOL, RPG and FORTRAN are dominant in service organizations. While COBOL and RPG are still used by manufacturing organizations, there has been a tremendous increase in the use of the BASIC language (46 percent as compared to 13 percent in the 1979 study). Again, this can be explained by the recent proliferation of microcomputers, which, until just recently, did not have either COBOL or RPG compilers. Data are shown in Table 9 and results are significantly different for both organization types and the previous study.

TABLE 8

Types of Terminals in Use

Type	Percent of Those Responding					
	Manufacturing %		Service %		Combined %	
	1979	1982	1979	1982	1979	1982
CRT	27	87	81	96	42	67
Teletype	7	5	14	8	9	4
Point of Sale	1	7	3	4	2	4
Decwriter	2	2	14	21	5	6
Intelligent	5	2	11	29	7	7

TABLE 9

Programming Languages Used

Language	Percent of Those Responding			
	1982 Survey			
	Manufacturing %	Service %	Combined %	Combined (1979 Survey) %
COBOL	26	76	39	35
RPG	29	36	30	31
Assembler	8	24	12	16
BASIC	46	12	39	12
FORTRAN	8	24	12	12
PL1	–	–	–	3
APL	3	4	3	2
Other	8	20	12	6

Table 10 indicates that little change has taken place in use type (business vs. scientific) in the state of Nevada over the past three years.

TABLE 10

Major Use of Computer Systems

Use Type	Combined (1982 Survey) (n = 114) %	Combined (1979 Survey) (n = 128) %
Business	92	96
Scientific	2	2
Both	6	3
Total	100	100

As expected, computer applications are statistically different between manufacturing and service groups and in the comparison to the 1979 study. Accounting and financial applications scored strong gains in all areas, while purchasing and graphics showed modest gains. Small increases were noted in production control and engineering, with no change found in sales forecasting. The management information application displayed a combined reduction from 14 percent in 1979 to 4 percent in the current survey. Data are depicted in Table 11.

TABLE 11

Major Computer Systems Applications

Application	Percent of Those Responding			
	1982 Survey			
	Manufacturing %	Service %	Combined %	Combined (1979 Survey) %
General Accounting	81	96	84	77
Payroll	71	80	73	65
Inventory	75	56	68	56
Cost Accounting	46	48	46	38
Purchasing	44	28	41	31
Production Control	30	20	27	26
Word Processing	21	8	18	–
Engineering	12	16	13	12
Graphics	7	8	7	4
Misc.	6	12	7	6
Sales Forecasting	6	8	6	6
Management Information	2	8	4	14

TABLE 12

Use of Secondary Storage Devices — Manufacturing Firms, By Size of Firm

Device	Manufacturing Firms							
	Small %		Medium %		Large %		Total %	
	1979	1982	1979	1982	1979	1982	1979	1982
Disk	40	85	53	86	67	78	66	83
Tape	13	8	30	12	24	26	37	17
Cards	7	0	17	5	10	0	14	2
Other	7	8	9	5	5	4	5	7

Computer Usage and Firm Size

Organizational size exerts an influence over computer facilities and uses. Tables 12 through 16 provide an indication of the extent to which annual sales volume (as a measure of firm size) accounts for differences in computer system facilities and uses. Small firms are defined as those with a volume of less than $500,000 in annual sales, medium firms with $500,000 to $5,000,000 in sales and large firms with over $5,000,000 in annual sales.

Of special interest is the large increase in the use of disk storage devices and the decrease (almost to zero) of cards (see Table 12). Another significant change is the shift to the use of CRT terminals by almost all manufacturing firms (see Table 14).

A dramatic increase in the use of the BASIC programming language was noted for small, medium and large manufacturing firms. On a combined basis, the percentage of use of BASIC rose from 13 percent in 1979 to 43 percent in the current survey. Table 15 provides detailed comparisons across firm size and time for six major languages.

TABLE 13

On-Line and/or Time Sharing Usage — Manufacturing Firms, By Size of Firm

System Type	Percent of Those Responding				
	1982 Survey			Total %	
	Small (n = 13) %	Medium (n = 43) %	Large (n = 24) %	1979 (n = 74)	1982 (n = 80)
On-Line (Yes)	31	51	83	46	58
Time-Sharing (Yes)	8	19	8	17	14

TABLE 14

Types of Terminals in Use - Manufacturing Firms, By Size of Firm

Type	Percent of Those Responding				
	1982 Survey				Total (1979 Survey) %
	Small %	Medium %	Large %	Total %	
CRT	75	80	100	87	27
Point of Sale	0	16	0	7	1
Teletype	0	4	5	5	7
Decwriter	13	4	0	3	2
Intelligent	0	4	0	2	5
Other	0	0	0	0	4

TABLE 15

Programming Languages Used — Manufacturing Firms, By Size of Firm

Language	Percent of Those Responding							
	Small		Medium		Large		Total	
	1979	1982	1979	1982	1979	1982	1979	1982
RPG	7	0	30	21	48	41	33	24
COBOL	7	0	19	7	24	38	20	15
BASIC	27	69	9	44	10	25	13	43
Assembler	0	8	8	5	14	8	10	6
FORTRAN	0	0	2	9	14	8	4	8
APL	0	0	4	5	0	0	2	3
Other	0	0	2	10	0	8	2	8

TABLE 16

Major Computer System Applications Manufacturing Firms, By Size of Firm

Application	Percent of Those Responding				
	1982 Survey				Total (1979 Survey)
	Small %	Medium %	Large %	Total %	%
General Accounting	46	79	100	81	77
Inventory	23	72	92	72	63
Payroll	23	72	88	71	62
Cost Accounting	8	47	67	46	41
Purchasing	8	51	50	44	35
Production Control	31	23	33	30	32
Word Processing	39	19	17	17	--
Engineering	15	12	17	12	12
Graphics	15	9	0	7	4
Sales Forecasting	0	9	4	6	8
Miscellaneous	23	5	8	8	8

DISCUSSION

Slightly over half of the Nevada organizations responding do not possess or use a computer. This represents little change from the 1979 study and provides an indication of the possibility for considerable future deployment of systems to first-time Nevada users. The rate of acquisition also appears to be unchanged from that found in the previous study. As economic conditions improve, this rate may increase.

Computer system applications have expanded dramatically, with major increases in all administrative areas. Word processing, an application thought to be of negligible importance in the 1979 survey, was found to be in use by 18 percent of current computer users. The more sophisticated areas of applications; e.g., graphics, engineering and production control, have also increased but less dramatically. This smaller growth rate can be explained by the age and maturity of systems in use; over one-half of the organizations have had their computer for five years or less.

The shift in functional responsibility for computer operations away from accounting and toward administration further reflects the broadening of computer applications within Nevada organizations. The computer is viewed as less of a dedicated tool of a specialized functional area, e.g., accounting, and more as a multipurpose device that can serve diverse organizational needs.

Significant changes in computer hardware have occurred since 1979. With regard to manufacturers, the earlier study showed that 66 percent of users had IMB or Burroughs equipment. This figure dropped to 44 percent in the 1982 study. This decrease has been accompanied by a dramatic rise in the number of mini and micro system manufacturers respresented. This shift corresponds to national trends that show a minicomputer growth rate of 30.6 percent and microcomputer growth rate of 52.7 percent in 1981.[2] During this same period mainframes increased at only a 9.4 percent rate.[3] Owing to the low cost and ease of use of these smaller systems, rapid growth can be expected for some time. An upgrading of hardware has also been taking place, with a major increase in the use of CRT Terminals attendant with a drop off in Teletype Terminal use. In similar fashion, the use of disks has increased dramatically, with a drop off in card and tape systems.

The size of the organization has a significant impact on the type of system application in use. In inventory control, for example, 92 percent of large manufacturers' organizations possess computer systems, while the figures for medium and small firms are 72 percent and 23 percent respectively. A similar situation exists with regard to general accounting, payroll, cost accounting and purchasing; this indicates that a large potential may exist for small firms in these areas. Just the opposite situation can be seen with regard to word processing. Here 39 percent of small firms utilize these systems with the percentage dropping to 17 percent for large organizations. It appears that a major market may exist for these systems in large Nevada firms.

CONCLUSIONS

While commuter systems are in wide use in Nevada, there is considerable opportunity for future deployment. Trends indicate that both numbers of systems in use and systems applications may be expected to increase. If the overall rate of growth of new applications continues as it has since 1979, major opportunities for software development and implementation in Nevada organizations can be expected.

The 1979 survey found COBOL to be the most widely used computer language in the state of Nevada. At that time the BASIC language was of minor importance. The current study finds BASIC to be tied with COBOL for the dominant language position with RPG in a strong third place. Nevada educational institutions should attempt to meet these needs with strong programs covering the three major languages in

use. This is reinforced by the finding that computer system managers feel that programming is the activity that should be given greatest emphasis in university data processing courses and the previously mentioned trend of high rates of new applications which will require computer programs.

The dispersion of computing power to new areas of application will also create requirements for specialized training in computer operations. This training will be necessary for both new and current employees, and will accelerate as the observed trend toward the use of smaller computers continues. It can be expected that increased demands will be placed on public and private educational institutions to meet these needs.

There is no evidence that the pace of change found in the period between the two surveys will diminish. Further research will be needed to monitor the status of this dynamic situation. Of major interest will be the extent to which small systems become dispersed throughout the organization and the effect this decentralization will have on computer languages, applications, data storage and hardware configurations.

Footnotes:

[1]The Chi-square is actually a test for independence of variable categories. A "statistically significant" result means the data are dependent upon the categories tested. This may be interpreted as saying that the data series are different from each other as in a "goodness-of-fit" test.

[2]Pamela Archbold, "The Foremost U.S. Companies in the Data Processing Industry," *Datamation*, June, 1982, p. 116.

[3]*Ibid*, p. 116.

LAWMEN BOLSTER ILLEGAL PRICE FIXING

The nation's top antitrust officials are refusing to enforce the law against resale price fixing, the May issue of *Chain Store Age Executive* charges.

To make matters worse, the magazine says, the Federal antitrust officials are intervening in private court cases on behalf of manufacturers charged with illegally dictating prices to retail stores.

In his Washington Commentary column, Chain Store Age correspondent Ken Rankin also notes that the U.S. Supreme Court has bowed to pressure from the Justice Department to decide a case (Monsanto v. Spray Rite) which will determine whether or not retail price maintenance (RPM) will remain an automatic or *per se* violation of the Federal antitrust laws.

Rankin says that the vast majority of the nation's manufacturers do not relish a return to "Fair Trade-style" restraints on retail price competition. (But few, if any, have spoken out against the pro-RPM philosophy that has infested the Justice Department and the Federal Trade Commission.)

Retail chains that discount merchandise could be put out of business by such a policy. Thus only such trade groups as the Association of General Merchandise Chains, the National Mass Retailing Institute, the National Association of Catalog Showroom/Merchandisers and the National Association of Chain Drug Stores have spoken out against price-fixing, but such large organizations as the American Retail Federation, Food Marketing Institute and National Retail Merchants Association have been strangely silent, says Rankin.

Nor has the White House taken a stand, the magazine says. The President has neither endorsed nor reputiated this anticompetitive position.

Now is the time, *Chain Store Age Executive* says, for people and associations to choose sides and speak up on this critical issue.

Source: *News Release* **LEBHAR-FRIEDMAN INC.,** New York, N.Y.

Campaigning for Corporate Office

*By Philip C. Grant**

The author explains that the corporate campaign yields two vital outcomes neglected by conventional employee selection routines. First, campaigning allows candidates to establish their leadership strength. Second, campaigning assures candidate commitment and motivation to perform after hiring.

The Campaign: A Democratic Process neglected by the Corporate World

Participative decision making, due-process systems of justice, "open door" policies, employee representation on boards—all these and more, mark the democratization of American corporate life. And the wave of democratization is gaining momemtum.

The impact of corporate democratization on employee satisfaction has been and continues to be positive. Evidence abounds indicating that greater democracy means less worker frustration and higher morale with accompanying lower labor turnover, fewer grievances, decreased absenteeism and reduced numbers of work slow downs and stoppages.

Corporate adoption of democratic practices, however, has not had significant impact on employee performance. Studies of employees at a variety of organizational echelons show that greater corporate democracy means little, if any, improvement in motivation, or in the quality (or quantity) of production. *But, one democratic process has escaped application in the corporate world.* And it is with this neglected process that great opportunities lie for improving performance. The process of reference is the campaign.

Consider the record of contemporary employee selection systems. Even when well-managed assessment centers are utilized, the likelihood of identifying the candidate who will best perform a job is not high. Data generated by today's selection methodologies—if not faulty—are generally insufficient. People hired, frequently turn out to be disappointingly underproductive. Employee performance would be significantly higher if selection processes were upgraded.

Why selection systems fail has much to do with the assumptions on which selection processes are based. There are at least three major assumptions guiding classical methodologies. *First,* companies assume they must avoid informing candidates as to the true nature of jobs. Companies are dominated by the desire to attract and secure employees and, therefore, attempt to prevent problems and undesirable features of employment from reaching candidates. Only positive features of employment are highlighted in recruiting and selection. This overriding drive to *"sell"* the job and company to candidates prevents them from valid self-assessment of how well they will do on the job and of how satisfied they will be with employment. They are given little opportunity to screen themselves out of employment nor to feed back to the company their insights into their likely on-the-job performance levels. The absence of self-screening and feedback of this type means organizations "get stuck" with a number of deficient performers.

Second, companies assume they must search for the candidate whose *abilities* best *fit* the prescribed role. Companies run candidates through skill and knowledge test batteries to identify levels of developed talent. Aptitude, or "trainability," is neglected as is candidate motivation to perform. Yet these two variables are fully as important as ability in determining on-the-job performance potential. Further, companies historically have attempted to find the candidate best fitted to a pre-defined role. It is assumed that the job is a "given." The employee must be compatible with it. There is a reluctance to recognize that quality employees often mold their jobs to match their own unique aptitudes and traits. The job is often what one makes it.

Third, it is assumed that selection must be a relatively *closed process* with management in absolute control of all selection activities. Selection decisions must be made only by a small group of personnel "experts" or by those in "authority." Democracy in selection is unacceptable. It is felt that no real purpose can be served by having broad based employee input in the process. The importance of hiring persons who are well-liked and accepted by peers and subordinates is not recognized. But one's success is greatly dependent on capacity to influence subordinates and peers. And this capacity can only be validly tested by encouraging widespread subordinate/peer participation in the selection process.

In this paper it is contended that organizations can upgrade their selection processes by allowing candidates for a corporate office to campaign for that office. The corporate campaign helps overcome the problems created by reliance on selection routines guided by the above assumptions. Campaigning promotes full disclosure of the nature of the job and permits candidates to adjust job design to

**Philip C. Grant is a management consultant and Head of the Department of Business Administration at Husson College in Bangor, Maine.*

accommodate their individual aptitudes and personalities. Further, it brings the view of the general organizational populace to bear in the selection decision.

The type of campaign referred to in this paper is not one of informality where candidates vying for office engage in occasional and randomized informal discussions with various organizational constituencies to sway opinion in their favor. Instead, the focus here is on a legitimized, or formalized, campaign process which is fully planned and controlled by management. Campaigning must be legitimized to clarify the behaviorial expectations of candidates during the campaign process and to assure that all candidates are given equal opportunity to promote themselves and their causes. Formalization is also essential to encourage an "official" response to candidates by the general organizational population. Formalization establishes an obligation on the part of employees to evaluate and register a vote on candidates.

Campaigning, as discussed here, produces vital outcomes not generated with conventional selection routines. These outcomes, when combined with information conventionally acquired, increase the probability that top performers will be chosen. The primary purpose of this paper is to identify and discuss two, often unrecognized but nonetheless valuable, types of outcomes yielded by the corporate campaign.

Campaigning Allows Candidates to Establish Their Leadership

Campaigning allows candidates to establish their leadership strength by (1) giving them an opportunity to display to superiors, peers and subordinates, their full and unique situational personalities, by (2) encouraging them to formulate and articulate courses of action to be pursued upon hiring and by (3) providing them with a chance to build social power, or political support, bases.

Personality Display

Conventional selection restricts candidate personality expression and casts the candidate for corporate office in a role having no resemblance to the leadership situation facing the selectee. Candidates must assume passive non-assertive postures. They respond but never activate. The candidate is expected to follow directions and to answer questions but is not permitted to innovate and initiate. Candidate behavior is tightly controlled by a closed and structured process. Candidates engage in no self planning and control during conventional selection proceedings.

As a consequence of the conventional approach, numerous key attributes of candidate character and personality, relevant for performance as a leader in corporate office, are never uncovered. Even with assessment centers, candidates have no real opportunity (only a simulated one) to display their full and unique situational personalities.

Adoption of the corporate campaign adds a radically different and valuable dimension to selection. *The campaign promotes extensive personality expression while serving as a trial employment period.* The appropriateness of one's personality for leadership in corporate office is thus validly tested.

During a campaign candidates become active, expressive and assertive. They are allowed to openly promote their own candidacies. They are encouraged to hold open forums for dialogue and debate, and to take stands on key corporate issues. All candidates are not regimented into identical behind-the-scenes test molds. Instead, candidates have an opportunity to demonstrate how their full and unique ability/motive mixes can be synthesized and energized to achieve real results. And, since through campaign participation, candidates face essentially the same interpersonal and problem environments faced by the selectee, their *situational* personalities (as well as their *full* and *unique* personalities) become evident.

Personality is a key determinant of leadership strength. Campaigning allows candidates to display their full and unique situational personalities to a broad spectrum of an organization's membership. All those members who will be impacted by the personality of the selectee, register an assessment of the degree of compatibility between candidate personality and job demands. Candidate leadership strength as a function of personality is thus established.

Platform Construction

Conventional selection tests candidate past and present performance but provides no opportunity for candidates to study organizational issues and to develop relevant future direction for the company. It is essentially a one-way information exchange process with the company thoroughly investigating candidates while candidates have little access to job and organizational data.

Under conventional selection candidates are not expected to diagnose organizational and job associated problems. They are not asked to develop a grasp of difficulties and opportunities confronting the selectee. Development by candidates, prior to hiring, of actual plans to accommodate the needs of the organization and its members is completely foreign to the conventional scheme.

Under conventional selection candidates are not expected to diagnose organizational and job associated problems. They are not asked to develop a grasp of difficulties and opportunities confronting the selectee. Development by candidates, prior to hiring of actual plans to accommodate the needs of the organization and its members is completely foreign to the conventional scheme.

Adoption of the corporate campaign changes all this. The campaign encourages candidate accumulation of data on issues and problems, and construction of platforms for future action. Under this model, candidates do have access to corporate-wide and job-related data bases. They are expected to study the concerns of the department, or division, in which the selectee will serve. They must develop and articulate a comprehensive array of goals, policies, strategies and programs to pursue upon being hired.

Each candidate in a corporate campaign is challenged to assemble a relevant platform and to explain the rationale for each of its planks to various organizational constituents. Campaigning thus generates insight into candidate *future* in-

tentions. Neither analysis of past nor present performance is equivalent to analysis of the forward looking platform.

Ability to set relevant direction is a key determinant of leadership. Campaigning encourages candidates to formulate courses of action for exercise post hiring and to openly articulate their intentions for a broad spectrum of an organization's membership. All organizational members who will be affected by the platform of the selectee, register an assessment of the quality of the directions set forth in those platforms. Candidate leadership strength as a function of ability to set relevant direction is thus established.

Power Base Development

Conventional selection attempts to eliminate politicking and social power exercises from the candidate screening process. Procedures are structured to isolate candidates from occasion to win favor and to negotiate IOUs. Candidates are discouraged from initiating personal informal contacts with employees and from building pre-employment friendships. Screening routines are designed with the specific intent of minimizing candidate influence peddling, power plays and political maneuverings. These kinds of activities are viewed as non-scientific and interfering with objectivity in assessing candidates.

Conventional selection thus denies the realities of corporate life and, more importantly, fails to recognize the value of pre-employment political behavior in assuring success. Ready made political support bases are critical in helping a new manager effectively execute a platform.

The corporate campaign encourages candidates to seek out and build political support. The notion that politics must be absent from proceedings is discarded. Candidates are urged to promote and sell their platforms to organizational members. They work one-on-one as well as in assemblies for the express purpose of persuading others of the worthiness of their proposed paths of activity. A candidate attempts to build as broad a political support base as possible. And any employee group is welcomed to actively support this attempt.

Such political behavior is seen as constructive under the campaign model because platforms can only be implemented with strong backing from "the troops." *Building power bases before hiring establishes the degree of support for platform execution after hiring.* Early popular approval is essential for rapid problem-free post hiring platform deployment.

Power base development is a key determinant of leadership. Campaigning allows candidates to influence organizational members, to win political favor and to build social power coalitions. The size and cohesiveness of those coalitions establish candidate leadership strength as a function of power base development.

Campaigning Assures Candidate Motivation to Perform

Campaigning assures candidate commitment and motivation to perform after hiring by (1) giving candidates a chance to test the match between the organization's reward structure and their personal needs and to "drop-out-of-the-race" if compatibility seems absent, by (2) allowing candidates to personalize the organization and, in particular, the job for which they are vying, and by (3) stimulating public statements from candidates as to their postures and intentions relative to corporate issues.

Reward/Need Compatibility

Conventional selection focuses primarily on determining how well candidate abilities meet job task demands. Little attention is given to assessing the probably motivation of candidates after being hired. The typical selection process does not attempt to determine the degree of match between candidate needs and the organization's reward structure. But without a close match, the selectee will lack motivation and performance will be low. Failure to evaluate candidate motivation to perform is a major weakness of contemporary selection methodologies.

Implementation of the corporate campaign model allows candidates, themselves, to assess the congruence of their motive profiles and the company's reward structure—to personally determine their own motivation for the job. During campaigning, candidates have substantial access to data on corporate rewards. They study the organization and learn the realities of corporate life. They become thoroughly familiar with the corporate reward/penalty system. Campaigning thus counters the impact of the traditional one-way sales pitch given candidates during recruiting.

If candidates determine there is an absence of compatibility between corporate rewards and personal needs, they self-screen themselves out of the race. *Campaigning gives candidates sufficient information to "select" the organization.* Any candidate who withstands the pressures of a campaign —the heat of competition from beginning to end—has decided the job is well suited to his needs.

The degree of congruence between an individual's needs and the organization's reward structure is a key determinant of motivation. Campaigning gives the candidate a chance to test that congruence. Since candidates initiate their own withdrawal from candidacy upon detecting a lack of congruence, the motivation of *final* candidates to perform the job after hiring is assured.

Job Personalization

Contemporary selection operates under the assumption that job content is fixed and definable and that a candidate must *fit* the job. The abilities of candidates are investigated to see how well they meet specific predetermined criteria. Jobs are not adjusted to fit the peculiarities of candidates. Candidates are given no chance to personally fabricate the nature of the job they seek.

In reality, however, management jobs are frequently ill-defined and highly fluid in content. It is common for tasks to be neither sufficiently stable nor specific to allow for development of valid job criteria. This is especially true of high level management positions.

Campaigning recognizes the structural nebulousness of the typical corporate office. The campaign process permits candidates to mold job content to accommodate their

personalities and interests. Candidates can propose their own boundaries for authority and devise their own sets of tasks for post-selection pursuit. To some extent the candidate is even able to shape those dimensions of corporate activity that interface with the job sought. *Indeed, campaigning recognizes that the job is what the incumbent makes it.* Corporate offices can be highly personalized by the assertive candidate.

A key determinant of employee motivation, closely related to that discussed above, is the degree of match between an individual's abilities and interests and the *content* of a job. Campaigning allows candidates to shape the content of a job to fit their ability/interest profiles. This personalization of work helps assure job motivation and commitment to performance after selection.

Public Pronouncement

Conventional selection is a closed non-affirmative process for candidates. They make no public statements of intent. Neither do they make commitments to plans and directions for post hiring pursuit. They promise nothing. As a consequence, the selectee is entirely free to act according to personal whims. The selectee can pursue any spur-of-the-moment inclination desired. The selectee's behavior is relatively unpredictable and often most unexpected.

During a corporate campaign, however, candidates must publicly disclose their plans for the future. Candidates align themselves with certain causes and take sides on the issues. Candidates vocalize their intentions and promise certain accomplishments. Campaigning forces candidate commitment to a stated platform. Upon selection, an individual will try hard to fulfill expectations created in the minds of the organizational membership. *Campaigning thus smooths the transition from candidate to employee.* An organization can predict full well what it is getting.

The degree to which candidate expressions are made public is a key determinant of motivation to perform after being hired. One is penalized for changing, or reversing, publicly stated direction. Campaigning forces public disclosure of positions and promises. Consequently, follow-through commitment and the motivation to perform are assured.

Conditions for Application

Campaigning is not appropriate at all times in all types of organizations under all circumstances. Campaigns can be disruptive, costing more than they are worth. Too many can unduly interfere with normal corporate agendas. Therefore some restrictions should be imposed upon application of this model. The following are guidelines for adoption:

(1) Campaigning should be used primarily to aid selection for strategic mid- and upper-management level positions. For high-level positions, definitive structure is typically non-existent and leadership *is* a vital function. The benefits derived from a campaign for high office will likely outweigh the burdens created. This is not true for numerous lower level jobs.

(2) The campaigning concept applies to most large industrial, transportation and public utility corporations and especially to collegial-type organizations staffed with professional people having high mutual trust and respect. Hospitals, universities, R and D organizations, engineering firms and consulting firms exemplify the type of organization in which a broad spectrum of a capable, mutually respectful and informed work force has a keen interest in the quality of management in all divisions at all levels.

(3) Campaigning should be reserved chiefly for internal candidates vying for promotion. Such candidates have ready-made foundations upon which to launch campaigns. They know the employees and the central issues. They know where and how to gather data on the position sought. For these candidates, campaign start-up time and cost are minimal. Also, with internal candidates a company does not run the risk of divulging trade secrets to the competition.

(4) The amount of time and money candidates are allowed to spend during campaigning should be limited. No company can afford excesses along either of these dimensions. Additionally, some limitations should be placed on candidate access to corporate data and other resources. For example, confidential files should not always be opened for candidates, and expensive equipment and materials should not always be available for candidate personal use.

(5) Rules-of-the-game should be developed to assure fair play during campaign exercises. Such constraints are imperative to guarantee equal opportunity for candidates and to shunt disruption of normal company operations.

(6) Though campaigning, in effect, broadens the selection base by allowing input from many, the final selection decision should reside with a committee. A candidate should not be voted into office by the general organizational populace. Other data beyond that yielded by the campaign are essential for quality selection. But let it be emphasized that committee members must carefully observe the outcomes of preliminary assessment: whose personality is the most highly compatible with job demands, who formulates the best platform and who assembles the most powerful political support bases. These yields of the open campaign process should receive heavy weighting in the selection decision.

Campaigning contrasts sharply with the classical selection paradigm casting candidates in a highly active, time-extended, role and diffusing the responsibility for selection by allowing a broad spectrum of an organization's membership to voice their views on candidate quality. Though the campaign has some limits on its applicability, it can, under proper conditions, make a valuable contribution to the employee selection process.

The essentiality of carefully specifying the conditions under which the campaign must operate cannot be overemphasized. The process must be appropriately formalized. Acceptable and unacceptable behaviors must be delineated.

The alternative is chaos. The disruptive potential of an uncontrolled campaign can be enormous. The costs of a selection tool such as the campaign must be minimized by establishing formal restrictions on how, when and where campaign activities can take place.

In the final analysis the great merits of a controlled campaign must be weighed and appreciated. The campaign can generate two major outcomes vital for employee selection purposes: it (1) establishes the leadership strength of candidates and (2) assures the motivation of candidates to perform after becoming employed. It is in these two areas that conventional methodologies are highly remiss. Yet, it is employee leadership strength and motivation that highly correlate with employee performance in corporate office. Thus, with one form of corporate democratization—the campaign—great opportunity lies for improving performance.

PRESCRIPTIONS LEAD SALES ADVANCE AS CHAIN SALES PUSH $29 BILLION

NEW YORK — Chain drug stores are moving into new merchandising areas, but prescriptions continue to be their bread and butter, accounting for 18.3% of the $28.66 billion in sales posted by chain drug stores last year, according to the *Drug store News* annual report of the industry.

Price increases helped push prescription sales by chain drug stores to $5.3 billion, an all-time high and 16.1% than in 1981. In 1981, prescriptions accounted for 17.5% of volume.

Over the counter drugs and proprietaries remained the second biggest contributor to the chain drug store, accounting for $4.4 billion, or 15.3% of chain drug store sales, the same percentage as in 1981.

Increased emphasis on one-day processing and deals such as two prints for the price of one boosted photo department and film processing sales 12.3% to $1.3 billion last year. Film processing at chain drug stores was 16% higher than in 1981, which was a substantial improvement over the entire processing industry, which grew approximately 10%.

In 1982, 44.6% of all photo finishing was done through drug stores, accourding to the *Drug store News* report.

Drug chains also increased their commitment to the do-it-yourself market, with auto parts and accessories such as motor oil becoming important traffic builders. Sales of the do-it-yourself items jumped 11.2% last year to $761.1 million and now account for 2.7% of all chain sales.

Cosmetics and toiletries also posted big gains, with cosmetics increasing 11.6% to garner 6% of all chain drug sales. Toiletries increased 8.2% to generate 11.6% of total chain drug sales.

Source: *News Release.* **LEBHAR-FRIEDMAN INC.** New York, N.Y.

The Image of the College of Business Administration at the University of Nevada, Reno as Perceived by the Local Business Community

*By Kyung-Il (Ed) Ghymn**

Introduction

Schools of Business, sub-units of the total university educational system, place emphasis on both academic and professional training, and hence, their educational programs are designed to cultivate the student's overall intellectual capacity as well as to teach specific managerial skills. But a perennial complaint is that there exists a considerable gap between the business community and academic circles. Business practitioners complain that Schools of Business are not adequately training students to meet the needs of the real business world (*ivory tower* attitude of professors and too many theory-oriented courses). Academicians respond by saying that business people are laggards in adopting modern management techniques.

The College of Business Administration at the University of Nevada, Reno (UNR) does not escape this type of criticism. A recent survey conducted by the author seems to indicate that UNR as a whole was perceived to be a "theory-oriented" school. The single most important recommendation made by the UNR alumni group (n = 266) was that there should be "more emphasis on professional-oriented programs."

Whether this is a segmented opinion or an industry-wide general perception, no one seems to know for sure. Specific purposes of this study were: first, to explore and assess how the local business community perceives the College of Business Administration at UNR in terms of quality of its services; second, to determine what types/kinds of programs local managers would like to see offered by the College of Business Administration.

Much valuable information was obtained from this study. The College of Business Administration at UNR is a local-oriented school in terms of manpower demand-supply relationships with the business community. It is estimated, for example, that about 70 percent of the accounting majors find their jobs in the local area. Therefore, it seems quite important to know how the College of Business Administration is perceived by the local business managers. An understanding of their perceptions and identification of their needs can lead directly to curriculum development and also contribute to the image improvement plan for the College of Business Administration.

**Kyung-Il (Ed) Ghymn is Associate Professor of Marketing and International Business, Managerial Sciences Department, College of Business Administration, University of Nevada, Reno.*

Methodology

A structured questionnaire was the main device for the study's data collection. A total of 450 managers was selected from the membership of organizations listed below. The selection was based on a stratified systematic sampling method.

	Number Selected
Reno-Sparks Chamber of Commerce: Manufacturers	150
Reno-Sparks Chamber of Commerce: Retailers	150
Northern Nevada CPA Association	100
Northern Nevada Marketing Association	50
TOTAL	450

The sample size for each group was determined by budget constraints rather than by any scientific approach. However, the size of the mailing list was considered in sampling from each group. Also considered in the sampling process was the location of the participating firms. Locations covered for the study were Reno, Sparks, Carson City, Lake Tahoe, Minden, Verdi, Stead and Fernley.

The questionnaire was mailed to sampled managers in these locations in November, 1982. Of 450 questionnaires mailed, 104 usable responses were returned, a 23 percent response rate. There were 36 "addressee unknown" returns, and therefore, the actual response rate was 25 percent. No significant difference was detected between the responding and non-responding firms. Both proportional analysis (crosstab) and one-way analysis of variance were employed to measure the perception variables and group difference.

Findings

1. Overall Perception Measures

Table 1 shows the overall image of the UNR College of Business Administration as perceived by the local business community, expressed in mean values and rankings. Respondents were asked to rate each image item on a five-point scale ranging from "excellent" (score 5) to "bad" (score 1) and "score 0" if they were unfamiliar with the item they were rating. The "score 0" was included in the rating scale to determine the degree of unawareness of College of Business Administration programs and quality by the respondents.

As seen in the table, the UNR College of Business Administration is perceived to be slightly better than a "so-so" college. A pleasant surprise is that the quality of the College of Business Administration faculty was ranked number one. An interesting finding is that the variety of course offerings was ranked number 2, when in fact there were limitations due to our faculty shortage. "Practical business training" was ranked number 10, a result somewhat expected (Table 1).

TABLE 1

CBA* Image as Perceived by the Local Business Community (N = 104)

Image Variable	N	Mean	Rank	Don't Know N	Don't Know %
Quality of business faculty	71	3.54	1	33	32
Variety of courses offering	75	3.51	2	29	28
Theoretical business education	66	3.45	3	42	37
Intellectual level of students	75	3.41	4	29	28
Acadamic standards	76	3.36	5	28	27
Quality of undergraduate business programs	76	3.39	6	28	27
Prestige of UNR's College of Business Adminstration (CBA)	83	3.33	7	21	20
Admission requirements	61	3.30	8	43	41
Quality of Masters business programs	39	3.23	9	65	63
Practical business training/education	78	3.08	10	26	25

*In the tables, College of Business Administration is abbreviated CBA.

Additional noteworthy findings are that 63 percent of the total respondents indicated no knowledge of the quality of the graduate business programs and 41 percent indicated no knowledge of admission requirements.

Table 2 shows the relative importance of selected business functional/service areas that local managers feel are important to know in order to function effectively as a manager in the real business world.

The first five areas in Table 2 were perceived to be "important" and the remainder were rated "somewhat important."

In an attempt to identify what the local business people need in the way of programs or services that can be offered to them, the respondents were asked to indicate the relative usefulness or needs of various programs in relation to their business operations. Table 3 summarizes the replies to this question.

TABLE 2

The Relative Importance of Functional/Service Areas (N = 104)

Functional/Service Area	Mean*	Rank
Accounting	4.20	1
Management	4.12	2
Information Management	4.12	2
Marketing	3.96	4
Finance	3.96	4
General Business Environment (Bus. Law, Bus & Society, Int'l)	3.47	6
Economics	3.28	7
Quantitative Methods (math, statistics, etc.)	3.18	8

* Five point interval scale:

Very Important	Important	Somewhat Important	Seldom Important	Rarely Important
5	4	3	2	1

TABLE 3

Programs/Services Needs by the Local Business Community (N = 104)

Program/Service	Mean*	Rank
Seminars for specific techniques for specific areas ("How To" approaches)	3.52	1
Student "Internship" program	3.25	2
Executive seminars for general business (a certificate program)	2.94	3
Consulting services by Business Research Bureau at UNR	2.74	4
Student help through Small Business Business Administration program	2.66	5

* Five point interval scale:

Extremely Needed	Needed	Somewhat Needed	Seldom Needed	Rarely Needed
5	4	3	2	1

"How-to"-type specific seminar courses received the highest ratings by the respondents, followed by "the student internship" program, but one of the active community service programs, viz., that of the Small Business Administration, received the lowest preference scores.

2. Group Difference Measures

The above findings are overall measures based on the aggregate data. While these aggregate figures provide some general information as to how the business community as a whole perceives the College of Business Administration, they do not offer specific information regarding "who perceives what and who needs what." Sometimes the aggregate data can be quite misleading.

In order to investigate the respondents' differences (or similarities) in their perceptions and needs regarding the

College of Business Administration at UNR, our sample managers were classified according to the following categories:

1. Functions..... Accounting, Marketing Production, General Management
2. Business type..... Accounting firms, distribution/ wholesale, manufacturing, retail
3. Educational institutions ... UNR and other institutions (UNR graduates vs others)
4. Business experience in years 0-7, 8-15, 16-25, 26 and more
5. Company size in employment..... 1-5, 6-15, 16-50, 51-100, over 100

Tables 4 through 13 are the results of comparing these groups. The respondents' opinions are expressed in mean values and their perception differences, if any, are also indicated in the tables. Since the table readings are straight forward and self-explanatory, further elaboration of the table findings was not attempted.

TABLE 4

CBA Image as Perceived by Functional Category

Image Variable	Accounting (n = 37)	Marketing (n = 11)	Production (n = 4)	General Management* (n = 27)
Prestige[b]	3.08	3.70	3.00	3.51
Faculty Quality	3.41	3.80	3.33	3.49
Course Variety	3.31	3.64	3.67	3.74
Academic Standards	3.14	3.89	3.00	3.47
Admission Requirements[c]	3.24	3.50	2.50	3.33
Student Intellectual	3.34	3.86	3.00	3.54
Practical Training	2.94	3.78	2.67	3.05
Theoretical Education[b]	3.26	4.13	3.33	3.54
Masters Quality	3.05	3.67	3.00	3.42
Undergrad Quality[c]	3.03	3.56	3.50	3.74

*General Management category includes: General manager, supervisor, personnel, staff and those whose functional descriptions do not belong to other classifications.
b = group difference significant at $\alpha = 0.05$
c = group difference significant at $\alpha = 0.01$

TABLE 5

The Relative Importance of Functional/Service Areas by Functional Category

Functional/Service	Accounting (n = 41)	Marketing (n = 12)	Production (n = 5)	General Management* (n = 40)
Accounting[b]	4.44	4.25	4.20	3.96
Finance[b]	3.95	4.50	4.00	3.73
Economic[d]	3.12	4.20	3.80	2.98
Marketing[d]	3.54	4.33	4.20	4.21
Management[b]	3.85	4.00	4.20	4.38
Information Mgmt.	4.12	4.25	4.40	4.00
Quantitative[b]	3.20	3.83	3.40	2.83
General Business	3.54	3.42	3.40	3.38

*General Management category includes: General manager, supervisor, personnel, staff and those whose functional descriptions do not belong to other classifications.
b: Significant at $\alpha = 0.05$
d: Significant at $\alpha = 0.002$

TABLE 6

Program/Service Needs by Functional Category

Variable	Accounting (n = 41)	Marketing (n = 12)	Production (n = 5)	General Management (n = 40)
Executive Seminar	2.80	2.72	3.40	2.92
"How To" Seminar	3.44	3.17	3.80	3.60
Consulting	2.73	2.55	2.80	2.59
Internship	3.56	2.83	3.40	3.01
SBA	2.55	2.27	2.60	2.80

TABLE 7

CBA Image as Perceived by Business Type

Image Variable	Accounting (n = 35)	Distribution/ Wholesale (n = 25)	Manufacturing (n = 13)	Retail (n = 9)
Prestige[a]	3.14	3.52	3.15	3.55
Faculty Quality	3.52	3.70	3.12	3.44
Course Variety	3.48	3.52	3.36	3.67
Academic Standards	3.20	3.55	3.30	3.38
Admission Requirements	3.28	3.33	3.20	3.14
Student Intellectual	3.34	3.52	3.40	3.38
Practical Training[b]	3.06	3.38	2.40	3.13
Theoretical Education	3.32	3.47	3.63	3.75
Masters Quality	3.00	3.44	3.20	3.66
Undergrad Quality	3.18	3.58	3.38	3.44

a: Significant at $\alpha = .10$
b: Significant at $\alpha = .05$

TABLE 8

Program/Service Needs by Business Type

Variable	Accounting (n = 38)	Distribution/ Wholesale (n = 32)	Manufacturing (n = 18)	Retail (n = 15)
Executive Seminar	2.76	3.13	3.11	2.73
"How To" Seminar	3.24	3.66	3.83	3.47
Consulting	2.61	3.00	2.56	2.53
Student Internship	3.68	3.75	2.72	2.80
SBA	2.62	2.93	2.41	2.47

TABLE 9

CBA Image as Perceived by College: UNR vs Other Institutions

Image Variables	UNR (n = 42)	Other Institutions (n = 46)
Prestige	3.30	3.24
Faculty Quality	3.63	3.34
Course Variety[a]	3.55	3.23
Academic Standards	3.43	3.17
Admission Requirements	3.37	3.08
Student Intellectual	3.50	3.26
Practical Training	3.00	3.97
Theoretical Education[a]	3.55	3.25
Masters Quality	3.31	3.00
Undergrad Quality	3.32	3.16

a: Significant at $\alpha = .10$

TABLE 10

CBA Image by Years of Business Experience

Image Variable	0—7 years (n = 32)	8—15 years (n = 41)	16—25 years (n = 1)*	26 and over (n = 12)
Prestige[f]	2.92	3.21		4.00
Faculty Quality[c]	3.29	3.87		4.00
Course Variety[f]	3.33	2.51		4.10
Academic Standards[c]	3.20	3.94		3.80
Admission Requirements	3.16	3.71		3.57
Student Intellectual	3.46	3.23		3.63
Practical Training	3.04	2.02		3.30
Theoretical Education	3.32	3.57		3.86
Masters Quality	3.20	2.40		3.75
Undergrad Quality[c]	3.17	3.53		3.89

c: Significant at $\alpha = .01$
f: Significant at α approaches to .0001
* Sample size too small for analysis

TABLE 11

CBA Image as Perceived by Firm Sizes (Number of Employees)

Image Variables	1—5 Employees (n = 16)	6—15 Employees (n = 21)	16—50 Employees (n = 25)	51—100 Employees (n = 15)	Over 100 Employees (n = 27)
Prestige[b]	3.90	3.44	3.32	3.15	3.13
Faculty Quality	3.73	3.60	3.44	3.33	3.50
Course Variety	3.36	3.69	3.59	3.40	3.81
Academic Standards[a]	3.64	3.53	3.47	3.20	3.05
Admission Requirements	3.11	3.42	3.20	3.25	3.29
Student Intellectual	3.50	3.53	3.55	3.33	3.20
Practical Training	3.46	3.20	2.89	2.85	3.14
Theoretical Education	3.70	3.55	3.33	3.73	3.16
Masters Quality[b]	3.75	3.30	3.75	3.67	2.73
Undergrad Quality	3.56	3.27	3.47	3.09	3.36

a: Significant at $\alpha = .10$
b: Significant at $\alpha = .05$

TABLE 12

Relative Importance of Functional/Service Areas by Firm Size

Functional/ Service	1—5 Employees (n = 16)	6—15 Employees (n = 21)	16—50 Employees (n = 25)	51—100 Employees (n = 15)	Over 100 Employees (n = 27)
Accounting	4.13	4.10	4.28	4.07	4.33
Finance	4.13	4.00	4.00	3.93	3.81
Economics	3.53	3.35	3.20	3.27	3.22
Marketing[a]	4.06	4.14	4.04	4.07	3.52
Management[b]	4.00	4.24	4.40	4.20	3.78
Information Mgmt.	4.06	4.10	4.16	4.13	4.11
Quantitative	3.25	3.05	3.36	3.07	3.15
General Business	3.44	3.33	3.76	3.47	3.33

a: Significant at $\alpha = .10$
b: Significant at $\alpha = .05$

TABLE 13

Program/Service Needs by Firm Size

Variables	1—5 Employees (n = 16)	6—15 Employees (n = 21)	16—50 Employees (n = 25)	51—100 Employees (n = 15)	Over 100 Employees (n = 27)
Executive Seminar	3.00	3.10	2.96	3.20	2.63
"How To" Seminar	3.67	3.62	3.56	3.53	3.30
Consulting	3.00	2.90	2.48	3.13	2.52
Internship	3.13	3.10	3.04	3.07	3.74
SBA	3.00	2.90	2.38	2.93	2.35

Concluding Remarks

This was a cursory, exploratory study. The main objectives were to assess the local business community's perceived image of the College of Business Administration at the University of Nevada, Reno, and to identify the needs for business programs and services. Due to the sample size limitation, a generalized conclusion based upon the present study may not be warranted. However, several noteworthy findings were observed: Some were expected, some unexpected, but all are interesting.

In terms of general image perception, the University of Nevada College of Business Administration stands as a "so-so" college in the minds of the local business community. Two revealing observations are that the "business faculty quality" was rated high followed by "variety of business courses offered." The old criticism that the shortcoming of the academic community lies in neglect of practical business subjects is still with us.

The second worst perception relates to the "quality of the Masters Business Programs." A finding of importance is that 63 percent of the respondents had no knowledge of the MBA program. This appears to be more than just "an interesting" observation—a corrective measure seems necessary.

Further elaboration on the group differences is not needed because the table presentations are clear-cut and straight forward. However, an additional point of interest is that CPAs and managers in "production" related fields tended to give lower ratings on most of the items measured than the other groups did.

It is hoped that this report provides some valuable information for the College of Business Administration in designing its programs and promotional plans in the future.

The Nevada Economic Indicators are omitted in this issue of the *Journal* due to technical difficulties. Publication of Statewide statistical data, data for Las Vegas and Reno SMSAs, and data by county will be resumed in subsequent issues of the *Journal*. The reader who needs this kind of statistical data may phone the Bureau of Business and Economic Research, (702) 784-6877.

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Edited by William R. Eadington
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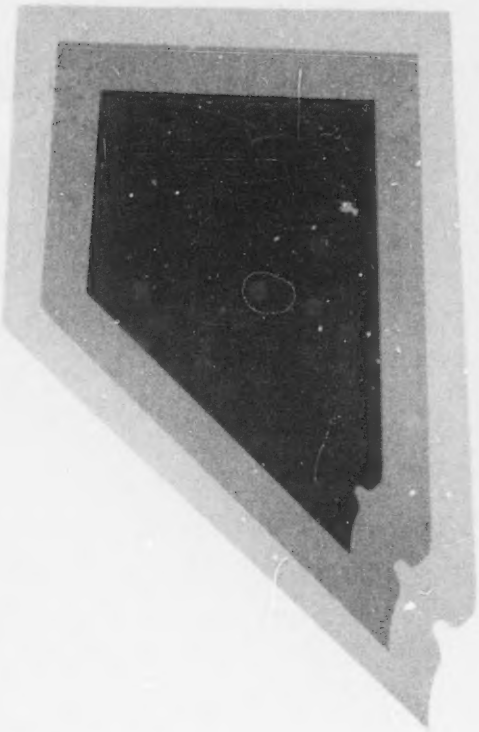

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In This Issue

Summer 1983 **Volume VII, No. 2**

Dealer Tokes:
An Historical Analysis
Of Their Income Tax Character 2
John M. Strefeler and Sharon L. Claflin

Nevada's Business Climate 1980 to 1982:
A Comparison of Economic Diversification
Factors Among Western States 8
Sam E. White

The Strategic Planning Function
In Electric Utilities 14
Harold S. Sekiguchi

Excerpts from the Las Vegas
Visitor Profile Study, 1982 20
By the Editor

Nevada Economic Indicators
Statewide Statistical Data 23
Las Vegas SMSA Data 25
Reno SMSA Data 26
Nevada Statistical Data by County 27
Selected U.S. and Regional Economic Indicators 30

Announcement: The Gambling Papers:
Proceedings of the Fifth National Conference on
Gambling and Risk Taking 31

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Dealer Tokes: An Historical Analysis Of Their Income Tax Character

*By John M. Strefeler and Sharon L. Claflin**

While the IRS regards dealer tokes as taxable income, dealers maintain that they are gifts and thus tax-free. This article researches the support for the opposing positions of the IRS and casino dealers regarding the tax nature of tokes. The analysis is made by exploring the general rules for distinguishing gifts from compensation, by considering the nature of tokes and the circumstances under which they are received, and by analyzing the court cases which have been directly concerned with the taxability of tokes.

INTRODUCTION

The Internal Revenue Service has recently taken an aggressive attitude toward the reporting of monies received by casino dealers from patrons of casinos. These gratuities (referred to as "tokes" within the gaming industry) are characterized by the IRS as being in the nature of compensation for services, and therefore are viewed by IRS officials as taxable income. Dealers, on the other hand, regard tokes as goodwill donations which are made by casino patrons without expectation of receiving any benefits from the dealer — that is, nontaxable gifts.

The purpose of this article is to investigate this area of tax law and to identify the argumental logic and the legal support for the positions of the IRS and the dealers. To accomplish this purpose, the article will explore the application of the general *gift-vs-compensation* principles of judicial law to the area of tokes and will identify the critical factors which have influenced the outcome in this area of current conflict. The paper will consider the somewhat unique setting in which tokes are received by dealers and the court cases which have specifically addressed the issue of tokes. Attention will focus upon the leading case involving Wendell Olk, a case which resulted in taxpayer victory in U.S. District Court but reversal and governmental triumph on appeal.

THE BASIC ISSUE: GIFT VS. COMPENSATION

The current controversy regarding tokes is the latest of many battles which have been waged over the larger issue of distinguishing nontaxable gifts from taxable compensation. Gross income is defined very generally in the Internal Revenue Code as including "all income from whatever source derived" (Sec. 61), a phrase which accurately suggests that Congress intends that gross income be broadly defined for tax purposes. The Treasury Department, in amplifying this definition in the applicable Regulations, specifically includes "tips" among a list of common receipts which fall within the tax meaning of income (Reg. § 1.61-2(a)). At the other extreme, Sec. 102 provides statutory authority to exclude gifts from the tax base by identifying "the value of property acquired by gift" as not being a part of gross income.

While the law is explicit in excluding gifts from the federal income tax base, the distinguishing features of a gift have been left to judicial interpretation. The result is that the gift/compensation question has been heavily litigated, with the leading authority in the area being the Supreme Court decision in *Commissioner v. Duberstein* (AFTR2d 1626).

In 1960, on the basis of conflicting decisions rendered by their respective appellate courts and, more importantly, upon exhortation by the Government that clarification was necessary for the orderly administration of this area of tax law, the U.S. Supreme Court granted *certiorari* (that is, agreed to review) the cases of *Duberstein* and *Stanton*. The Government requested that, as a result of this review, a standard or test be adopted by the court to be applied in future cases where payments are made in a business context. More specifically, the Government proposed to define gifts as "transfers of property made for personal as distinguished from business reasons."

Both *Duberstein* (appealed from the Sixth Circuit) and *Stanton* (appealed from the Second Circuit) concerned the provision of the Internal Revenue Code excluding gifts from gross income and involved voluntary payments in circumstances having business overtones. In *Duberstein*, the taxpayer was given a Cadillac automobile by a corporation with whom he had no formal employment relationship but for which he had helped secure business. The assistance had come in the form of names of potential customers which Duberstein had voluntarily provided periodically during telephone conversations with the president of the corporation.

**John M. Strefeler is Associate Professor of Accounting and Information Systems, College of Business Administration, University of Nevada, Reno, and Sharon L. Chaflin is Assistant Controller, Edwards Industries, Inc., Portland, Oregon.*

Stanton, a taxpayer, received installment payments totaling $20,000 from his employer upon his resignation. The payments were made pursuant to a resolution of the board of directors which characterized the gesture as a gratuity in appreciation for his approximately 10 years of prior service. The cases were combined for consideration by the Supreme Court.

A major difficulty in interpreting the word "Gift" for income tax purposes emanates from conflict between the statutory meaning of the word and its meaning at common law. Nevertheless, the Court decline the suggestion by the Government that a new test be established to identify transactions which would qualify as gifts. Instead, it preferred to rely upon established law and the decision serves more as a concise compilation of prior, related opinions rather than an innovative means of clarifying the issue.

Although the car was characterized by both parties as a gift and no moral obligation for compensation was found, the Court held that the transfer was income to Duberstein, noting that the car "was at the bottom a recompense for Duberstein's past service or an inducement for him to be of further service in the future." Citing various cases covering a time period of about 30 years, the Supreme Court made a number of additional remarks elaborating on the definition of gifts for income tax purposes. The commentaries *(obiter dicta)* summarized below, provide the general standards for accepting or rejecting a specific transaction as a gift. They have been organized into seven guidelines and include references to the original cases upon which the Supreme Court relied in reaching its conclusions.

1. Payment must be made voluntarily by one party to another without compensation or consideration in order to be considered a gift. Therefore, a payment or transfer is clearly not a gift if it is primarily motivated by compulsion arising from a "moral or legal duty" on the part of the donor. (*Bogardus v. Commissioner,* 19 AFTR 1195).

2. On the other hand, the absence of obligation is not sufficient in itself to qualify a transfer as a gift. "For the court has shown that the mere absence of a legal or moral obligation to make such a payment does not establish that it is a gift." (*Old Colony Trust Co. v. Commissioner,* 7 AFTR 8875).

3. Additionally, a transfer is not a gift if the transaction is inspired by the anticipation of economic benefit to the donor. (*Bogardus v. Commissioner,* 19 AFTR 1195).

4. However, if any payment or transfer is in exchange for services received, then the fact that the donor does not receive the expected economic benefit is inconsequential and it is not a gift. There can be no taint of compensation for past, present or future services. (*Robertson v. U.S.,* 41 AFTR 1053).

5. The donor's characterization of the transaction is not to be determinative in identifying gifts. It is the substance of the situation rather than the name applied to it which controls. (*Bogardus v. Commissioner,* 19 AFTR 1195).

6. To qualify as a gift within the statutory meaning of the word, a payment must be attributable to a "detached and disinterested generosity" (*Commissioner v. LaBue,* 49 AFTR 832) motivated by "affection, respect, admiration, charity or like impulses." (*Robertson v. United States,* 41 AFTR 1053).

7. When cash or property is received outside of a formal employee-employer relationship, the intent of the donor is the controlling factor in determining whether a particular transfer or payment is a gift or compensation. (*Bogardus v. Commissioner,* 19 AFTR 1195).

Having established a framework for distinguishing transactions which are gifts, the Court stressed the need, under current statutory provisions, for general principles adaptable to the particular facts of each case. Accordingly, and in light of the subjective nature of donative intent, the Court concluded that whether or not a particular transfer can be treated as a tax-free gift must be determined by reviewing the facts and circumstances on a case-by-case basis.

The *Duberstein* decision did not accomplish what the Government had hoped for (that is, a clear statement concerning transfers made for business reasons). By allowing lower courts to make decisions based on the facts of each individual case, the Supreme Court refused to endorse a strict standard for the lower courts and instead confirmed in them substantial latitude in reaching their conclusions. The Court explicitly allowed for the exceptional case wherein a payment made in a business setting might be a gift, although most similar payments would not qualify as such. It is imperative, then, that some consideration be given to the circumstances under which toking takes place.

In *Stanton,* the Court referred the case back to the lower courts for reconsideration. The money received by Stanton was eventually held to be a gift (*Stanton v. U.S.,* 6 AFTR2d 5640, aff'd. 7 AFTR2d 934).

THE LEGALIZED GAMBLING ENVIRONMENT AND TOKING

Persons employed in a typical business environment (such as waitresses and taxicab drivers) are the agents through which a customer purchases a service or commodity. The number and size of tips which they receive in the course of their work are based on the cost of the service or commodity provided, their manner of assistance in its purchase and social constraints which have made tipping almost mandatory in some situations.

Dealers are employed in an environment which is antithetic to a normal business setting. Legalized gambling is a unique industry, the nature of which is to sell chance to its customers. A casino offers the ordinary person, working forty hours a week for a fixed amount of pay, a chance to turn a few dollars into thousands with little or no effort on that person's part. The atmosphere created is not one of rational bartering — but one of emotion.

A person employed in this atmosphere can both suffer the ills and reap the benefits of a player's emotion. One day a player might throw his cards in a dealer's face and become verbally abusive; the next day, the same player may throw the dealer a five dollar chip. Neither action is due to the quality of the dealer's on-the-job performance or the service

rendered to the player — only to the emotion created within the gaming environment. It is not unusual for a dealer to receive a large toke from someone who has lost heavily, nor is it unusual to receive nothing from someone who has won thousands of dollars. Players have been known to win a large amount of money and toke bartenders who did not serve them a drink, cashiers who provided no service but cashing in chips, and dealers who did not deal to them.

Furthermore, a casino dealer is not involved in the purchase of a good or service in the usual sense. A dealer is employed to perform a function in a setting where the quality of the performance is unrelated to the economic result to the customer. The manner in which a dealer performs his job has no effect on the rules governing how a game is played, nor the outcome of the cards, the dice, or the number into which a roulette ball falls.

Policy concerning a dealer's interaction with a player varies among individual casinos. At one extreme is casino policy requiring a neutral expression and prohibiting any extraneous conversation or personal contact between a dealer and a player; at the other extreme is casino policy encouraging conversation and allowing a dealer to display personality and friendliness to a player. No casino, however, allows fraternization or interaction between a dealer and a player which results in the player receiving any form of special consideration. The only service rendered by the dealer is to his employer in the sheer simplicity of doing the job for which he is receiving compensation.

Tokes received by dealers bear many obvious similarities to the tips received by waitresses, bartenders, barbers and taxicab drivers. As this discussion indicates, however, tips and tokes are not entirely analogous. But which are more significant from an income tax standpoint? Should emphasis be placed on the similarities or on the differences?

LITIGATION CONCERNING TOKES

The question, then, is how the general precepts regarding gifts and compensation should be applied to the circumstances under which dealers receive tokes in the gaming industry. Specifically: Are tokes received from casino customers taxable income or nontaxable gifts?

Bevers. The first tax litigation concernming payments received by dealers occurred in U.S. Tax Court in 1956. (*Bevers v. Commissioner,* 26 TC 1218). The taxpayer, Lawrence E. Bevers, worked for several Las Vegas casinos during 1953. Bevers was employed as a twenty-one dealer, a roulette operator, and a crew member for craps. Casino policy did not permit dealers to offer betting advice to patrons, and in fact dealers were forbidden to engage in any unnecessary conversation with casino patrons. Casino operating pro edures included close supervision by superiors to ensure that dealers did not take actions which would involve preferential attention or special favors for any patrons. Thus, the atmosphere was one in which dealer contact with patrons was kept to an absolute minimum.

During the course of play, it was not uncommon for players to supplement their own wagers with a bet on behalf of the dealer operating the game being played. The dealer would collect the winnings if play warranted, with the amount of the bet continuing to belong to the bettor. Usually the bet on the dealer's behalf would remain for future play until such time as it was lost to the casino. These winnings of the dealers, known as "side money," were pooled into a common fund at the end of each shift and then equally divided among the dealers involved. Casino management was aware of and tolerant of this practice.

The Internal Revenue Service, upon audit of Bevers' 1953 tax return, assessed a tax deficiency of $143. This was based upon $623 of side money which Bevers had received but not reported on his federal tax return for that year.

The petitioner, Bevers, argued that the side money he had received was a gift and therefore excludable from gross income.[1] The IRS responded that the sums received from the wagers were in the nature of tips and, as such, were taxable income. In support of its position, the government cited the case of *Harry A. Roberts* (10 TC 581, aff'd 38 AFTR 296).

In the *Roberts* case, which involved a taxicab driver, the Court ruled that tips are compensation for services rendered and therefore constitute taxable income. The Court, noting that a taxpayer must treat the "fruits of his labor" as being income, pointed out that the tips were paid in recognition of good service and at the same time the fare was paid, and so were incidental to the service which a taxicab driver provides to his passengers.

The Tax Court determined that the principles expressed in the *Roberts* case were controlling and that side money was therefore taxable income received as a direct result of employment (i.e., the Court held it to be compensation for personal services.) In the decision the Court noted that it saw no features in the casino dealer situation which distinguished it from that of the taxi driver. The Court elaborated that in performing his job, the dealer was also rendering services for the casino patrons. The side money was incidental to such services, would not have been paid had the dealer been merely a passive observer, and so can only be regarded as gains derived from his work.

The Tax Court also cited the practice of splitting tips and the consent of management as additional evidence consistent with the treatment of side money as taxable compensation. In particular, the practice of pooling was mentioned as an indication that side money was regarded by the dealers as "an accepted portion of the consideration which they would receive for their services."

Olk. The issue of the taxability of tokes did not reappear in the courts for almost 20 years. Then, in 1975, the tax character of tokes was again contested when Wendell Olk litigated the matter in U.S. District Court (Dist. of Nevada). (*Olk v. U.S.,* 35 AFTR2d 75-910).

During the tax year in question, 1971, Wendell Olk worked as a craps dealer at the Horseshoe Club and at the Sahara Hotel, both in Las Vegas. Olk received tokes during the course of his work as a dealer but did not report them as income on his 1971 federal tax return. The IRS audited his return, assessed approximately $800 in additional taxes (including interest and penalties) based upon the unreported

tokes, and received payment in full. Olk then filed a refund claim and sued to recover the money in U.S. District Court.

The basic factual situation for Olk was very similar to that of Bevers. Casino policy did not allow dealers to engage in any unnecessary conversation with players or otherwise to fraternize with casino patrons. They were to treat all casino patrons alike, to spend their break time in areas separated from public access, and to refrain from providing any form of special service to patrons.

Olk would sometimes receive tokes from casino patrons, either money or chips directly, or by having bets placed on his behalf. The tokes were pooled at the end of each shift and divided among the dealers involved, much as was done in the *Bevers* case. Casino management consented to the practice of toking, although the practice was not encouraged since it removed money from the table and thus reduced the potential take of the casino.

The government argued that the tokes received were not in the nature of gifts, but were a form of tips. As support for its position, the government cited *Bevers* as being dispositive of the issue. Olk did not dispute the conclusion that tips are taxable as a form of compensation, but rather he argued that tokes are not tips. His case rested upon the premise that tokes are received in an unusual situation involving exceptional circumstances. He maintained that cases involving dealers should not be decided based upon precedents regarding waiters and taxicab drivers, but on the special circumstances unique to the gaming industry.

In considering the reliance which the IRS had placed upon the decision in *Bevers,* the Court noted that *Bevers* and *Olk* were identical in the facts of the cases. Thus, unless the logic of the *Bevers* case was found to be wanting, its conclusions would control, and tokes would again be identified as taxable compensation. The District Court, however, concluded that the Tax Court had erred in relying on *Roberts* to reach its judgment.

> "The Court is of the opinion that the Tax Court failed to take into account the uniqueness of a dealer's activities when compared to those engaged in by a cab driver or one in a similar service capacity."

In finding that the decision of the Tax Court resulted from an improper application of the standards contained in *Roberts,* the Court presented the following as an operative definition of a tip:

> "For present purposes, a tip may be defined as a payment of money to an individual who has rendered a service, either as additional compensation because of the quality or promptness of the service or, as a result of social compulsion, because the recipient feels obligated to give the individual a sum of money beyond what is charged for the service itself."

The Court then noted what it judged to be the significant differences between a dealer's receipt of tokes and a taxicab driver's receipt of tips.

The taxicab driver, in the eyes of the Court, might receive a tip due to either of two reasons. The first reason is through service of a superior quality. The driver could receive a tip as a reward for providing his customers with particularly helpful and courteous treatment. The second reason is social compulsion. The taxi driver, regardless of the quality of service which he provides, may be tipped by passengers because they feel that tipping is an expected practice under the circumstances. To refrain from the custom would reflect poorly upon their sense of social propriety.

The dealer in a gaming casino is in a very dissimilar set of circumstances. The Court noted emphatically that a dealer is precluded from providing superior service as a means of achieving a tip.

> "He is forbidden to engage in the personable conduct which others rely on to obtain or increase the amount of a tip. He does not furnish a *personal service,* but merely carries out the duties of his employment. This is a critical distinction since while a cab driver or waitress furnishes a basic service to the employer . . . as well as a personalized service to the customer both in impact and *manner* of performance, the dealer furnishes only the basic service to the employer and must adopt an impersonal attitude toward the patron." (emphasis in original)

Thus, a dealer cannot receive a tip based upon service.

Likewise, a dealer cannot receive a tip emanating from social compulsion. The Court noted that the overwhelming majority of players (90 - 95%) do not toke dealers, an indication either that players do not regard toking as an expected practice or that they do not feel obligated to engage in the practice.

The Court thus concluded that tokes were not tips which were generated as an incident to the services that the dealer performed, as had been determined in *Bevers.* In concluding remarks on this aspect of the problem, the Court referred to the "almost machine-like manner" in which a dealer performs his job and remarked that it was "that phenomenon known as 'luck'" rather than the quality of the dealer's service which determined the degree of satisfaction of the casino patrons. The Court also expressed its opinion that the practice of tip pooling was not relevant to the issue.

Having determined what tokes are not, the Court then addressed the question of what they are and concluded that tokes are gifts within the tax meaning of the term. The Court rejected the conclusion that tokes were a disguised form of compensation, noting that there was no evidence that the casinos were able to pay lower wages to dealers as a result of the practice of toking. To the contrary, the only evidence presented to the Court was that dealers were paid a fair and equitable wage and that they were not informed that their compensation would be supplemented by the receipt of tokes from patrons.

Emphasizing that it is the intent of the party making the payment which is the determining factor in distinguishing gifts, the Court indicated that players were motivated to give money either from spontaneous impulses to share their success or from the superstitious feeling that the recipient might somehow be bringing them good luck. It was further noted that money was given not only to dealers, but also to other players and to bystanders who were merely observing the game. Such "spontaneous or superstitious impulses", in the

mind of the Court, emerged from a sentiment of detached and disinterested generosity and therefore fell within the meaning of gift as described in *Duberstein*.

Olk revisited. The government, unwilling to accept the decision of the lower court, appealed the *Olk* decision to the U.S. Court of Appeals (Ninth Circuit). The Court of Appeals handed down its decision in 1976, a ruling which reversed the findings of the District Court. (*Olk v. U.S.*, 38 AFTR2d 76-5219).

The Ninth Circuit indicated in its opinion that there was no dispute involving the basic facts of the case and accepted that it was impulsive generosity or superstition which was the dominant motive for players to toke dealers. However, the Court concluded that tokes were taxable income because of the personal contact involved while dealers performed the services entailed in their employment.[2] The Court further observed that a toke given to a dealer due to a player's superstition was not a detached and disinterested act. "Tribute to the gods of fortune . . . can only be described as an 'involved and intensely interested' act."

The Court also observed that the characteristics of tokes would lead a dealer to reasonably regard them as "indistinguishable" from wages and thus as a regular part of his compensation. Somewhat cryptically, the Court added: "The manner in which a dealer may regard tokes is, of course, not the touchstone for determining whether the receipt is excludable from gross income. It is, however, a reasonable and relevant inference well-grounded in the findings of fact."

Finally, the Court asserted that its decision was in agreement with other cases "in the area of commercial gratuities" and offered as a general statement that

> "receipts by taxpayers engaged in rendering services contributed by those with whom the taxpayers have some personal or functional contact in the course of the performance of the services are taxable income when in conformity with the practices of the area and easily valued. Tokes, like tips, meet these conditions. That is enough."

Olk, then, resulted in a shift in reasoning but no change in the conclusion as to the taxability of tokes. The Court accepted that it is erroneous to include tokes as a part of tips, but it concluded that the distinguishing features would not justify differing tax treatment. Both have characteristics which make them taxable gratuities from customers.

As a final note, this logic was recently upheld by the Tax Court in another case involving toke income (*Norman R. Davies*, TC Memo 1981-438 (1981)). The *Davies* case, in supporting the *Olk* decision, did not provide any new insights into the tax nature of tokes and so will not be discussed.

SUMMARY AND CONCLUSION

Much controversy has recently arisen within the state of Nevada regarding the taxability of tokes received by persons employed as dealers in the gaming industry. At the heart of this dispute is the issue of distinguishing nontaxable gifts from taxable compensation. The IRS holds that toke income is compensatory in nature and therefore taxable; dealers, on the other hand, maintain that tokes are gifts motivated by a player's generosity.

The Internal Revenue Code clearly indicates that compensation is considered income for tax purposes, while gifts are specifically excluded from gross income. Although the pertinent code sections are relatively simple and straightforward, the Code does not specifically address itself to the features which differentiate gifts from compensation. This lack of a statutory definition has necessitated that the distinguishing factors be determined through the judicial process.

The Supreme Court attempted to shed some light in this area when it agreed to hear the *Duberstein* case. In handing down its decision, the Court described a gift as proceeding from "detached and disinterested generosity" and found that the critical factor in determining whether a particular transfer is a gift or compensation is the intent of the payor. The Court chose to rely on prior case law rather than to establish an objective test, concluding that whether a payment is a nontaxable gift must be determined by reviewing the facts and circumstances on a case-by-case basis.

Toke income is unique to the gaming industry and, until recently, unique to the state of Nevada. Tokes arise in circumstances which bear many similarities to the conditions surrounding tipping, but there are also some noticeable differences. The issue left to the courts, then, was how to apply the general tax rules regarding gifts and compensation to the specific facts and circumstances relating to toking.

Two cases dealing with tokes have established the current judicial posture in this area. In 1956, the Tax Court found that tokes were tips and, as such, taxable income (*Bevers v. Commissioner*, 26 TC 1218). The District Court rejected this argument in 1975, determining that tokes were not tips and that established case law regarding tips was therefore not applicable (*Olk v. U.S.*, 35 AFTR2d 75-910). The Court emphasized the unique nature of gaming along with the spontaneous nature of toking and determined that tokes were gifts within the guidelines expressed in *Duberstein*. Upon review, however, the Court of Appeals reversed the findings of the lower court and declared tokes to be taxable income (*Olk v. U.S.* 38 AFTR2d 76-5219).

Currently judicial action is pending in the Tax Court on yet another case regarding the taxable nature of tokes. The reasonings and precedents of prior decisions are squarely on the side of the IRS, so that dealers must work from a position which has historically proven to be weak. Their chance of success must rely upon seeking new arguments and stronger evidence in support of their position and the hope that they can thereby persuade the Court to redetermine the taxable status of tokes. Clearly history is not on their side.

Footnotes:

[1] Bevers argued in the alternate, that even if side money were taxable income, its character would be in the nature of gambling income since the amounts were received as a result of wagers made for him by gaming patrons. Thus, the argument continued, the side money could be offset by any gambling losses for the year. The conclusion that side-money was in the

nature of compensation for services was inconsistent with the contention that it constituted gambling income and made deliberation of that issue unnecessary.

[3]An important but technical aspect of the Appellate Court's decision was its holding that the lower court, in finding that tokes resulted from detached and disinterested generosity, had erroneously classified a conclusion of law as a finding of fact. The legalistic aspect of this holding (i.e., distinguishing a finding of fact from a conclusion of law) is beyond the scope of this paper.

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Billion Dollar Industry Expected to Achieve Rapid Growth by 1990

Often considered simply a service function, wholesale distribution has emerged as a gigantic U.S. industry with a projected growth rate higher than most other areas of the economy.

This is one of the major findings of a recent study of the wholesale-distribution industry, "Future Trends in Wholesale Distribution." The study was sponsored by the Distribution Research and Education Foundation (DREF) of the National Association of Wholesaler-Distributors (NAW), and conducted by Arthur Andersen & Co., the international public accounting and consulting organization.

With gross annual sales of $1.3 trillion, the wholesale-distribution industry includes more than 307,000 companies, employing more than 5.4 million people. The industry serves as a conduit between manufacturers, other manufacturers and retailers. Companies in this industry purchase goods from manufacturers and sell them to retailers and business users, providing warehousing, value-added processes, delivery and credit services to customers along the way.

Projected growth in the industry between now and 1990 is more than 4 percent per year, higher than the forecasted rate of growth for U.S. GNP, according to John C. Davis III, DREF president and Denver wholesale drug distributor.

The major reasons for this projected growth are productivity improvements, economic influences and the addition of value-added services provided by the wholesaler-distributor.

"Responsibility for some services will shift to the wholesaler-distributor," said James W. Norris, industry director—Wholesale Distribution, at Arthur Andersen & Co. "Suppliers will rely on the wholesaler-distributor for such services as educational seminars, financial and inventory management, and market research."

An outgrowth of this greater revenue base will be more publicly-owned corporations as companies seek capital to finance expansion. The study predicts that by 1990 there will be a 50% increase in the number of wholesaler-distributors that have the ability to obtain external financing. Panelists predict that this increase in publicly-held firms will create greater market awareness of the industry. The term "public" in this study means companies that obtain equity financing from any outside sources.

U.S. wholesaler-distributors must also be prepared to deal with greater competition from foreign companies, the study reports. By 1990, foreign companies are expected to own 10% of all U.S. wholesale distribution companies and a 15% share of industry sales, up from 2% in 1970. The 15% market share represents more than $450 billion in sales.

U.S. companies also are expected to expand geographically through mergers and acquisitions. As a result of this more competitive environment, companies will look to greater mechanization and computerization in the next 10 years. Computer information systems and planned order entry will be used to aid inventory management and productivity, the report predicts.

"Companies are going to need to retrain their employees for the more mechanized environment," Norris said. "People qualified in strategic planning, information management and data processing are necessary if firms want to improve productivity."

Companies also are expected to improve cost-effectiveness and productivity through greater reliance on common and private carriers. In the future, a smaller percentage of companies will deliver orders using their own trucks, the study shows. Wholesaler-distributors will either use carrier services, or register themselves as common carriers to maximize the use of their trucks' capacity.

Through streamlining operations and improving productivity, panelists predict, industry firms will generate more internal cash to finance growth. That's important, they say, because competition for long-term bank loans is expected to be high. Panelists worry that their industry is misunderstood by the financial community, hurting their ability to obtain loans.

Overall, however, panelists expect their growth and greater professionalism will increase the industry's visibility in the years to come.

Nevada's Business Climate 1980 to 1982: A Comparison of Economic Diversification Factors Among Western States

*By Sam E. White**

This article is an analysis of the data contained in the Alexander Grant surveys [1-3] with a regional and Nevada focus of interest. The writer concludes that since 1980 there has been an improvement in Nevada's business climate as perceived by executives of manufacturing companies. Cautioning that progress to date may be slipping away, the writer notes the marginal improvement in overall favorableness from 1981 to 1982 and the deterioration in governmental conditions and in other related issues categories.

INTRODUCTION

The development of a diversified economy has become a primary objective for many business leaders and political office holders as well as a topic of interest for the general public in Nevada. Efforts at diversification within the state have continued to grow since the founding of the Southern Nevada Industrial Foundation in the mid-1950's and Western Industrial Nevada in the early 1960s. The latest intensive push for a diversified economy began with the undertaking of a Two Phase Diversification Study of economic factors influencing a firm's site location decision sponsored by Western Industrial Nevada in 1981. It continued throughout the political campaign for the Governor's Office in the fall of 1982. More recently the issue of promoting state-wide industrial variety surfaced in the 1983 state legislative session in the form of a proposal to reorganize the state Department of Economic Development into three separate divisions. One division is specifically devoted to promoting economic diversification by attracting new business organizations and facilitating their move into Nevada.

All of this emphasis on economic diversification leads to the pondering of several intriguing questions. One basic question concerns Nevada's image as an acceptable residence for business organizations by company executives located outside the borders of the state. What are the perceptions of Nevada's business climate? Has the climate improved significantly since the beginning of recent efforts to promote Nevada as a feasible business location? Of course, these questions cannot be answered in isolation. How well Nevada is developing its business climate must be assessed in relation to the climate of other states which are directly competing with Nevada in attracting new industry.

One source of information for addressing these questions is partially provided through the annual surveys produced by Alexander Grant & Company on the impressions and attitudes of general manufacturing executives concerning the attractions of each state as a business site. The favorableness of a state is judged on the basis of an assessment of each state's business climate. Business climate is defined as a group of important economically related factors that business executives view as important to their business success.

Measuring the Business Climate

Many factors may be linked to the success or failure of a particular business enterprise. The exact makeup of the list will be, to some degree, dependent on the type of business being considered. Thus, the attractiveness of a state's business climate is somewhat related to the type of business; the state's attractiveness differs for each industry and each enterprise. However, even with this variability, it seems reasonable to assume that several of the factors considered in assessing business climate are shared regardless of industry grouping or type of business. For example, most firms regardless of industry or business type would consider proximity to markets and cost of local labor as primary considerations in determining the favorableness of the business climate of a particular locale.

Given this "assumption of similarity," a list of factors was developed by the Alexander Grant & Company research staff [1-3]. This list was submitted to manufacturing executives for evaluation on two dimensions. First, the importance of each item in determining the success or failure of their business. Second, the degree to which each state's business climate contained the identified ingredients for success. Based on an empirical voting procedure, each factor was assigned a weight representing the importance of the specific factor in promoting the success of the executive's firm. (More methodological detail is available in the original study.)

Following the assignment of importance weights, factors

**Sam E. White is Associate Professor of Management and Business Policy, Portland State University, Portland, Oregon. Dr. White was a resident of Nevada for three years, and during that time, participated in several economic diversification projects for the state.*

of significance were grouped into five thematic categories. These categories were labeled according to their common element. The five groups are: (1) Government Fiscal Policies; (2) State Regulated Employment Costs; (3) Labor Costs; (4) Availability and Productivity of Labor Force; and (5) Other Related Issues. Each of these groupings and the specific factors included in the category are presented in Table 1. Only the most recent definitions are given. Those measures which were changed or added between the 1980 and 1982 surveys are noted with an asterisk (*). It must be noted that the development of the current list of factors and categories was completed over the four year period. Thus, some research and interpretation problems were created during the sequence of studies. The major problems and some procedures for minimizing their effects are discussed in a later section. (Once again, the reader is directed to the original studies for a detailed discussion of the developing of the original research methodology and procedures.)

TABLE 1

Categories and Factors Used in the Analysis +

I. State and Local Government Fiscal Policies
   a. Level of Taxation Per $1,000 of Personal Income*
   b. Trend in Taxation Over Three Years*
   c. Ability of Government to Match Expenditures and Revenues Over Three Years
   d. Level of Government Indebtedness
   e. Attitude of Government Officials Toward Social Program Expenditures*

II. State Regulated Employment Costs
   a. Cost of Unemployment Compensation Benefits
   b. Status of State Unemployment Compensation Trust Fund
   c. Cost of Temporary Total Disability Insurance to Employer
   d. Cost of Workers' Compensation Insurance per $100 Payroll

III. Labor Costs
   a. Cost of General Manufacturing Labor in State*
   b. Trend in Wage Rates Over Three Years*
   c. Impact of Labor Unions and Associations on Wage Rates
   d. Trend of Union and Association Activity on Wages Over Two Years for Non-Agricultural Workers

IV. Availability and Productivity of Labor Force
   a. Ability of State to Provide a Skilled Work Force*
   b. Level (amount) of Trainable Work Force Available*
   c. Stability of Non-Agricultural Work Force and Cost Due to Work Stoppages Over Two Years
   d. The Productivity/Cost Relationship of Manufacturing Employees*
   e. The State's Ability to Utilize Its Human Resources*

V. Other Manufacturing Related Issues
   a. Fuel and Energy Costs for Manufacturers
   b. Importance Placed on Environmental Control by State Official*
   c. Population Density of Markets*
   d. Growth or Decline Rate of Markets Over Three Years*

+ Factor and Category Names are based on those employed in 1982 Report by Alexander Grant & Company.
*Measures changed or added between the 1980 and 1982 surveys.

Defining the Western States

The 1980 *Study of Manufacturing Business Climates* was the first to separate the forty-eight contiguous states into geographical regions. The basis for this separation was shared demographic, economic and geographic characteristics. Using these criteria eleven states were designated as the Western region. These states were identified as primarily west of the Rocky Mountains. They are: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. (This regional breakdown was modified in the later studies in favor of a more detailed separation, e.g., southwest, northwest, etc., which is less useful for our current purposes.)

Some Cautions in Developing Conclusive Generalizations

Although the Alexander Grant & Company surveys are an excellent source of reliable information on the business climate of each state, it is appropriate to point out some limitations which signal for a cautious approach in the development of generalizations based on the survey data. First, the sample is limited to executives working for manufacturing firms. This restriction makes for an extremely narrow sampling of the total business types making up the actual business community. Thus, when it comes to developing a realistic impression of what business executives perceive as being favorable to the success of their enterprises, one must be very careful not to rely entirely on the attitudes and opinions of this restricted group. For example, the surveyed companies may need different governmental services than companies engaged in other types of business activity, e.g., insurance underwriting or computer services. However, in defense of the appropriateness of using the focal survey information, it must be pointed out that the Grant & Company results parallel those of the 1981 Western Industrial Nevada Diversification Study which encompassed a much broader sampling of companies. This similarity of conclusions tends to give credence to generalizations based on the Grant & Company studies. The question, however, remains, *"How much* of the results can be generalized?"

Another limitation of the survey data is that there have been significant changes in the measures used from one study to the next as well as changes in the method of measurement. For example, the way the state and local tax burden is measured was changed from a per capita basis to tax per thousand dollars of personal income between 1980 and 1981. Similarly, the amount of tax dollars spent in maintaining highways was included in the 1980 study but was eliminated from the 1981 and 1982 studies; a measure of population density was not included in the 1980 survey but was included in the 1981 and 1982 studies. These changes create interpretation problems because they compound the effects of significant "diversification effort effects" with measurement and method effects. Thus, it is impossible to determine with absolute confidence the source of the reported changes in attitudes and opinions expressed in the series of survey reports.

METHODS AND PROCEDURES

Procedures for Comparing States of Interest

As we have already seen, the original studies were completed on a nation-wide basis. This indicates that the original state rankings were made vis-a-vis all other forty-eight states. Thus, if we are to make meaningful comparisons among the eleven western states, the original data must be converted into regionalized information.

In order to compute regional rankings, the national rankings for each factor were listed in tabular form by year. Next, the national rankings were multiplied by the appropriate yearly "weighted importance figures" so that the intervals between the original rankings for the eleven western states were incorporated into the regionalized rankings. Regional conversion was performed on the original ranking for each year independently of all other years.

The product of the described multiplication process was a "weighted raw score" for each state on each factor. The weighted raw scores were summed for each category of factors and for the five categories. Finally, to make all yearly scores comparable, the raw scores were standardized to a base 100 and the category totals were ranked in ascending order (1 to 11) to develop a business climate ranking which is restricted to the eleven western states. These regional rankings and scores appear in the tables and are discussed in the following Analysis and Results section.

In addition to the straight forward conversion process which maintains the integrity of the original data, a "consistency rule" was used to eliminate some of the compounding effects caused by changes in the measures and measurements. We have used only those items which were evaluated in all three studies regardless of "how they were measured." Thus, when computing the rankings among Western States for 1980, we did not include those items which were dropped from the 1981 and 1982 studies, e.g., we did not include the dollars dispersed for highways in the "Related Issues" category when computing the 1980 rankings.

Two important features must be noted about these conversion procedures. First, these procedures take into account the changing importance, as viewed by manufacturing executives, of the critical factors included in a state's business climate. For example, the numerical weights of each separate factor are integrated into the regionalized computations of the figures shown in the tables. Thus, they reflect the relative importance of each factor and each set of factors in the final rankings of the state's business climate. These *importance weights* change each year. Second, each thematic category is collectively weighted in the final rankings shown in the tables. Thus, each of the yearly overall rankings may be analyzed according to changes in the separate factor categories. This allows identification of progress or decline in the separate categories and may lead to a directing of effort toward those categories and factors needing attention to improve the state's business climate.

TABLE 2

Nevada's Business Climate Scores Between 1980 and 1982 on Five Important Dimensions

Factor Sets	1980	1981	1982	Change 1980 to 1982
Government Fiscal Policies	261.53	189.81	225.14	- 36.39
Government Regulated Costs	159.12	151.41	165.78	6.66
Governmental Factors	420.65	341.22	390.92	- 29.73
Unregulated Labor Costs	200.72	240.02	116.85	- 83.87
Availability & Productivity of Labor	122.93	104.69	100.00	- 22.93
Labor Force Factors	323.65	344.71	216.85	- 106.80
Other Related Issues	269.97	161.08	238.52	- 29.45
Total Climate Scores	1012.27	847.01	846.29	- 165.98

ANALYSIS AND RESULTS

Important Comparisons for Nevada

There are three important comparisons necessary for determining the effects of the State's effort to create a favorable business climate. These comparisons are: (1) a comparison of Nevada's regionalized business climate score from one year to the next. This comparison is made independently of the business climate scores for other western states; (2) Nevada's comparative ranking vis-a-vis the other western states; and (3) a comparison of Nevada's ranking on each of the independent factors making up the overall ranking vis-a-vis the other western states.

Each empirical comparison will add to our knowledge of how well Nevada is doing in implementing a competitive diversification program. The first comparison will indicate the progress (or lack of it) Nevada is making in improving its business climate independently of what directly competitive states are doing. The second comparison will indicate how well Nevada is doing in relation to other regional competitors. The third comparison will indicate which dimensions of the business related environment are improving or declining in terms of their attractiveness to nationally located business executives.

Changes in Nevada's Independent Position 1980 — 1982

Nevada's regional raw scores for 1980 through 1982 for each of the specific categories of factors making up the business climate are presented in Table 2. Remember that higher scores represent a less favorable business climate. Nevada scored 1012.27 in 1980, 847.01 in 1981 and 846.29 in

TABLE 3

Business Climate Scores and Rankings of Western States on Five Important Dimensions for 1980

Factor Sets	Ariz	Calif	Colo	Idaho	Mont	Nev	N Mex	Ore	Utah	Wash	Wyo
Fiscal	195*	239	142	100	173	262	183	213	138	204	252
Policies	6	9	3	1	4	11	5	8	2	7	10
Regulated	100	170	134	108	144	159	151	185	114	168	145
Costs	1	10	4	2	5	8	7	11	3	9	6
Governmental	295	409	276	208	317	421	334	398	252	372	396
Factors	4	10	3	1	5	11	6	9	2	7	8
Labor	166	249	130	102	254	201	100	232	113	265	120
Costs	6	9	5	2	10	7	1	8	3	11	4
Avail & Prod	197	137	100	206	200	123	103	132	175	200	230
of Labor	7	5	1	10	9	3	2	4	6	8	11
Labor Force	363	387	230	308	455	324	203	364	288	465	350
Factors	7	9	2	4	10	5	1	8	3	11	6
Other Related	268	379	134	253	179	268	161	286	102	205	100
Issues	8.5	11	3	7	5	8.5	4	10	2	6	1
Total Climate											
Scores	926	1175	640	770	951	1012	698	1048	642	1043	846
Rankings	6	11	1	4	7	8	3	10	2	9	5

*Climate scores were rounded to the nearest whole number. Thus, some columns will not sum to the appropriate total.

1982. This indicates that Nevada has improved its business climate significantly since 1980 but the figures also show that Nevada has remained essentially unchanged since 1981.

The change in overall ranking is easily explained when the scores on the separate categorical dimensions are examined. Governmental Fiscal Policies improved 36.39 points between 1980 and 1982. The same progress was not made in the Regulated Costs category. This feature retreated slightly from 1980 to 1982 (6.66 points). However, in general, governmental factors did show improvement over the period. The overall ranking of the labor force factors showed even greater progress; labor force factors improved 106.80 points from 1980 to 1982. Individually, Unregulated Labor Costs improved from a score of 200.72 in 1980 to 116.85 in 1982. Availability and Productivity also improved, gaining 22.93 points over the study period. The Other Related Issues category improved 29.45 points from 1980 to 1982. Improvement in this category seems to have contributed significantly to the overall improvement in Nevada's business climate.

Again, the reader is cautioned not to jump to any hasty conclusions about the significance and reliability of the figures in Table 2. Important changes were implemented in research methodology such that the observed improvement may simply be due to the different ways in which variables were measured in 1980 and 1982. A review of the 1981 versus 1982 figures shows that conditions began to deteriorate in the governmental factors category between 1981 and 1982. Significant improvement was made in the labor force categories; this is especially noticeable in the Unregulated Labor Cost category. However, the Other Related Issues category was downgraded in the 1982 survey of executives. These counterbalancing changes offset each other so that a very small improvement in the overall business climate occurred between 1981 and 1982.

Nevada's Comparative Position 1980 — 1982

The regional rankings of each state on each category and class of factors for 1980, 1981 and 1982 are presented in Tables 3, 4 and 5. Overall in 1980, Nevada was 8th among the western states in favorableness of business climate. The only states to rank below Nevada on the overall measure in the 1980 survey were Oregon, Washington and California. In the separate categories, Nevada's ranking ranged from a high of 3rd in the Availability and Productivity of Labor to a low of 11th in Government Fiscal Policies. In terms of classes of factors, Nevada ranked 11th in Governmental factors, 5th in Labor Force factors and tied for 8th in Other Related Issues factors.

Overall, Nevada's ranking showed significant competitive improvement in the 1981 survey results (Table 4). Governmental factors improved to 4th with only Idaho, Arizona and Colorado ranking higher than the Silver State. Nevada ranked 3rd on Labor Force factors; Arizona, New Mexico

TABLE 4

Business Climate Scores and Rankings of Western States on Five Important Dimensions for 1981

Factor Sets	Ariz	Calif	Colo	Idaho	Mont	Nev	N Mex	Ore	Utah	Wash	Wyo
Fiscal	238*	270	151	100	223	190	261	269	277	311	304
Policies	5	8	2	1	4	3	6	7	9	11	10
Regulated	100	135	111	101	169	151	124	164	108	126	112
Costs	1	8	4	2	11	9	6	10	3	7	5
Governmental	238	405	262	201	392	341	385	433	384	437	416
Factors	2	8	3	1	7	4	6	10	5	11	9
Labor	188	253	231	247	390	240	100	294	222	392	191
Costs	2	8	5	7	10	6	1	9	4	11	3
Avail & Prod	100	133	115	188	185	105	197	231	197	244	205
of Labor	1	4	3	6	5	2	7	10	8	11	9
Labor Force	288	386	346	434	575	345	297	525	419	635	396
Factors	1	5	4	8	10	3	2	9	7	11	6
Other Related	182	263	144	197	165	161	181	192	100	108	141
Issues	8	11	4	10	6	5	7	9	1	2	3
Total Climate											
Scores	808	1053	752	832	1132	847	863	1150	903	1180	954
Rankings	2	8	1	3	9	4	5	10	6	11	7

*Climate scores were rounded to the nearest whole number. Thus, some columns will not sum to the appropriate total.

TABLE 5

Business Climate Scores and Rankings of Western States on Five Important Dimensions for 1982

Factor Sets	Ariz	Calif	Colo	Idaho	Mont	Nev	N Mex	Ore	Utah	Wash	Wyo
Fiscal	276*	302	206	100	279	225	352	339	332	295	344
Policies	4	7	2	1	5	3	11	9	8	6	10
Regulated	100	147	150	134	231	166	155	204	138	162	140
Costs	1	5	6	2	11	9	7	10	3	8	4
Governmental	376	449	355	234	510	391	507	543	470	457	485
Factors	3	5	2	1	10	4	9	11	7	6	8
Labor	100	169	141	112	158	117	124	151	111	212	101
Costs	1	10	7	4	9	5	6	8	3	11	2
Avail & Prod	123	117	119	153	165	100	127	157	130	162	120
of Labor	5	2	3	8	11	1	6	9	7	10	4
Labor Force	223	286	260	265	323	217	251	308	241	373	221
Factors	3	8	6	7	10	1	5	9	4	11	2
Other Related	159	305	212	271	208	239	292	273	100	166	135
Issues	3	11	6	8	5	7	10	9	1	4	2
Total Climate											
Scores	759	1041	828	770	1040	846	1050	1123	811	996	839
Rankings	1	9	4	2	8	6	10	11	3	7	5

*Climate scores were rounded to the nearest whole number. Thus, some columns will not sum to the appropriate total.

and Colorado ranked 1st, 2nd and 4th, respectively. On the Other Related Issues factor, Nevada was ranked near the middle (5th) with Colorado ranked 4th and Montana, 6th. In terms of category rankings, Nevada ranked its highest (2nd) in the Availability and Productivity of Labor category; Nevada ranked its lowest (9th) in the Regulated Costs category. Interestingly, Nevada's business environment improved in every category of factors, with its biggest improvement coming in the Fiscal Policies area.

Nevada's overall ranking declined two places in the 1982 survey report. Both Wyoming (5th) and Utah (3rd) improved their ranking enough to place ahead of Nevada. Governmental factors remained constant at 4th; ahead of Nevada on the Governmental factors were Idaho, Arizona, and Colorado. Labor Force factors improved to 1st. The Other Related Issues category declined from 5th to 7th; California (11th), New Mexico (10th), Oregon (9th) and Idaho (8th) placed below Nevada on the Other Related Issues. Individual categories of factors did not show the consistent improvement witnessed in the 1981 survey report. Specifically, Nevada's business environment improved significantly in the Labor Force factors; however, the Other Related Issues factors showed significant regression during the period.

DISCUSSION AND CONCLUSIONS

The present study results show that Nevada's business climate has undergone some significant changes since 1980. In general these changes have been toward improvement in the perceptions of Nevada's business climate as being more facilitative to the success of companies located within the state. However, there is some indication that the progress made to date may be beginning to slip away. Note the marginal improvement in overall favorableness between 1981 and 1982 and the significant deterioration in governmental conditions and the Other Related Issues category during the study period.

The present analysis and results also tend to indicate that several conditions are currently helping or hindering advancement of economic diversification within the state. It appears that the business community is doing an excellent job of utilizing its labor force effectively. The productivity factor has continued to show improvement over the study period. Likewise government is complementing the business executives' effort by continuing to increase the supply of trainable workers. For example, improvement has been continuous in the state's ability to provide a skilled work force (factor IVa, Table 1) and to utilize its human resources (factor IVe). By contrast, government actions have hindered business environment improvement by consistently increasing the costs of doing business within the state. For example, the regulated costs of Unemployment Compensation Benefits (factor IIa) have risen disproportionately to the increases experienced in other western states.

When governmental factors are considered, it is interesting to note that the improvement in business climate from 1980 to 1981 coincides with the reduction in property taxes and the shift to a sales tax package. Notice the great improvement in the Fiscal Policy category from 1980 to 1981, as well as its subsequent decline in 1982, as fiscal problems began to surface. If this perspective is accurate, the future impact of increasing the level of property taxes and other levies implemented by the Legislature in 1983 should cause a further decline in the favorableness of Nevada's business environment.

Another factor which is highlighted by the present analysis is that the business environment of Nevada may be influenced significantly in a very short period of time. This tends to indicate that Nevada's business climate is very susceptible to the short-run actions of state governmental officials. If they are serious about implementing economic diversification, considerable reflection and analysis must be done before implementing new laws which increase the costs of doing business within the state. Thus, stop gap measures to balance the budget or to increase state revenues without a corresponding increase in business economic activity are not conducive to attracting new businesses to Nevada.

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The Strategic Planning Function in Electric Utilities

*By Harold S. Sekiguchi**

Most observers of the utility industry anticipate the 1980s and 1990s to be particularly harsh for the electric power industry [2, 7, 9 & 10]. The difficulties run the entire spectrum of the socio-economic and political dimensions and bode a cloudy, risky future for the investor-owned utilities in the United States.

Since the early 1970s, utilities have been cast into a highly constrained environment. Specifically, they find themselves burdened with a low-growth rate, rising costs and strong consumer resistance to rate increases and environmental deteriorations. To cope with these adversities, utilities have been employing a capital minimization strategy (curtailing capital budgets to an operational minimum), aggressively seeking higher rates to narrow the widening gap between rising costs and lagging revenues, and/or pursuing a diversification strategy, along with the establishment of holding companies, to protect nonregulated revenues. These measures, however, do not appear to be resolving the underlying issue of how to deal with an industry already in transition from a decreasing unit-cost industry to an increasing unit-cost industry. Thompson attributes the change to the "combined impacts of inflation, escalating construction costs, pollution control regulations, and added taxes on electric utility company operations. . ." [9]. These environmental forces have thrust the electric utilities into a high cost business of supplying electricity in a relatively short time span (1970 on).

It has become apparent that traditional planning, or facility planning, falls short of enabling management to strategically establish a viable relationship between their internal resources and the changing environment. These circumstances seem to have stimulated an interest among the utilities in strategic planning.

In view of the foregoing, this study was designed to evaluate the extent to which corporate strategic planning is being performed by investor-owned electric utilities in the United States. Specifically, the study sought answers to questions such as (1) what is the nature of the strategic planning function in the utilities, (2) who are the strategic planners in investor-owned utilities, and (3) what planning problems confront strategic planners.

This paper will focus primarily on the issue of how the strategic planning function is being carried out in the electric utilities.

A questionnaire was sent to each of the 128 utilities listed in the 1982 Edison Electric Institute's directory of "Investor-Owned Electric Utility Corporate Planning Contacts." A total of 75 questionnaires was returned from 40 states, resulting in a response rate of 59 percent. Of the 75 questionnaires received, 71 were usable which yielded an effective response rate of 55 percent. In addition, 46 respondents submitted either their planning manuals, completed strategic plans or personal descriptions of their planning procedures.

CURRENT STATUS OF THE STRATEGIC PLANNING FUNCTION IN UTILITIES

In strategic planning, corporate management is concerned with the fundamental issues affecting the organization's long term success and survival, i.e., with its mission, objectives, goals and the effective allocation of resources. It seeks to attain the most viable match between the internal resources of the firm and the changing external environmental variables.

For purposes of this study, strategic planning is viewed as planning involving the formulation of long-range organizational objectives to be attained at some point in the future (at least three or more years) and the development of corporate-wide integrated plans to achieve such objectives. In a layman's term, strategic planning provides a clearer picture of *what* you are and *where* you are at a given point in time, helps you to decide what you *want* to be at some point in the future, and develops plans with the highest probabilities of getting you to that point.

Although utilities for many years have had long term plans involving financial projections of future plant expansions, load growth projections and other operational plans, only recently have strategic plans gained some attention. Of the 61 percent who have indicated that they are involved in developing strategic plans, more than half (57 percent) of the planners in the survey have had less than four years of strategic planning experience. A total of 81 percent of the companies have been involved in strategic planning for six or fewer years while only a handful (9 percent) state that they have been doing it for longer than ten years.

*Harold S. Sekiguchi is Professor of Managerial Sciences, College of Business Administration, University of Nevada, Reno.

It is apparent that utilities are very much in the early stages of sorting out the planning systems that best fit their specific organizational requirements, managerial styles and key issues confronting them. For utilities just getting into strategic planning, much of their planning activities is on an ad hoc basis and what little formal direction given comes from the chief executive officer. For example, in a small utility company without a formal planning department, all company officers participate in the planning process with the president as the chief planner. A two-day officer retreat generally starts the planning process with attention focused on the formulation of the mission statement, corporate objectives and goals. No formal planning procedure is established. It should not be inferred, however, that such informal planning is necessarily bad. Where executives have demonstrated a firm grasp of what strategic planning is all about, as evidenced by the type of questions asked and answers sought, a highly structured formal planning system could easily dampen the spirit of uninhibited interaction among the participants.

Organizational Structure for Strategic Planning

Where utility management is committed to strategic planning, this function is accomplished through a top management planning committee variously designated as Executive Planning Committee, Strategic Planning Committee, Corporate Planning Council or Strategic Management Council. Participants include the chairman of the board and chief executive officer, the president and senior vice-presidents. Frequently, the director of corporate planning acts as the committee's secretary and performs the liaison role with his staff and other planning groups. Figure 1 illustrates a typical organizational structure for carrying out the strategic planning mandate.

Although the specific responsibilities of the executive planning committee vary among the utilities, it generally sets the scope and nature of the strategic planning activities for the key areas of the company. It is involved in the formulation and approval processes of each element of the company's planning system.

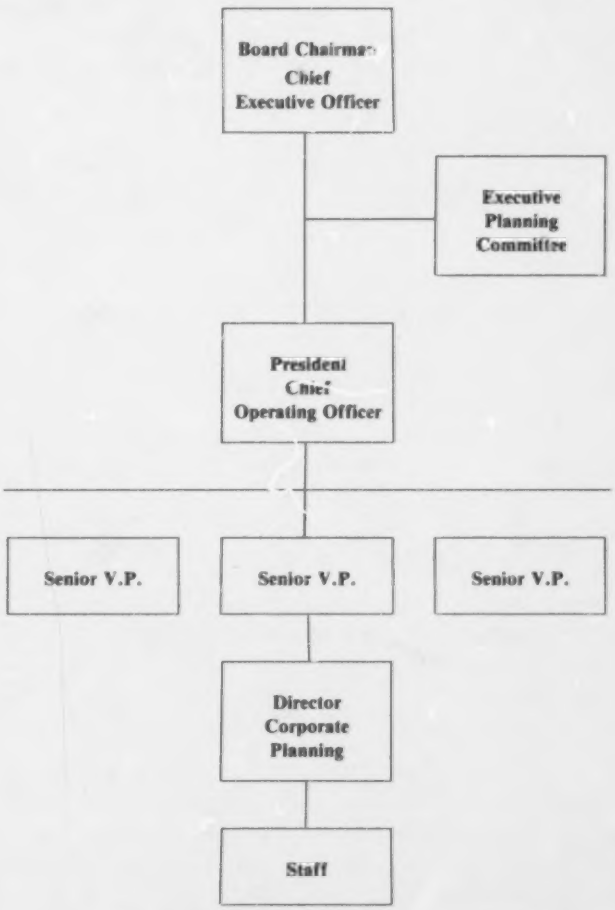
The corporate planning department's function is to serve as staff to the executive planning committee and provides supporting analytical capability. Specifically, it is called upon to provide information in developing forecasts and assumptions for planning, evaluating and testing alternative strategies and programs, and assists the top management group in preparing corporate objectives, strategies and task implementation plans. The planning department participates in the feedback and analysis tasks and reports to the executive planning committee with recommendations for modifications or changes in the programs being implemented.

Corporate planning departments are staffed with planning specialists. Specialists frequently mentioned include: economists, financial analysts, strategic planners, corporate planners, forecasters, business analysts, market researchers and/or computer modeling experts. To facilitate the planning process, utilities use commercial modeling systems, particularly PLANMETRICS and PROMOD. Planning models developed by the department staff are also used.

The basic thrust of computer utilization in planning is still in the direction of engineering and special accounting models. Only a few of the planning models allow corporate management to ask "what if" type questions. This may be due to the relatively recent attention given strategic planning by the utilities.

FIGURE 1

Organization for Strategic Planning in Electric Utilities

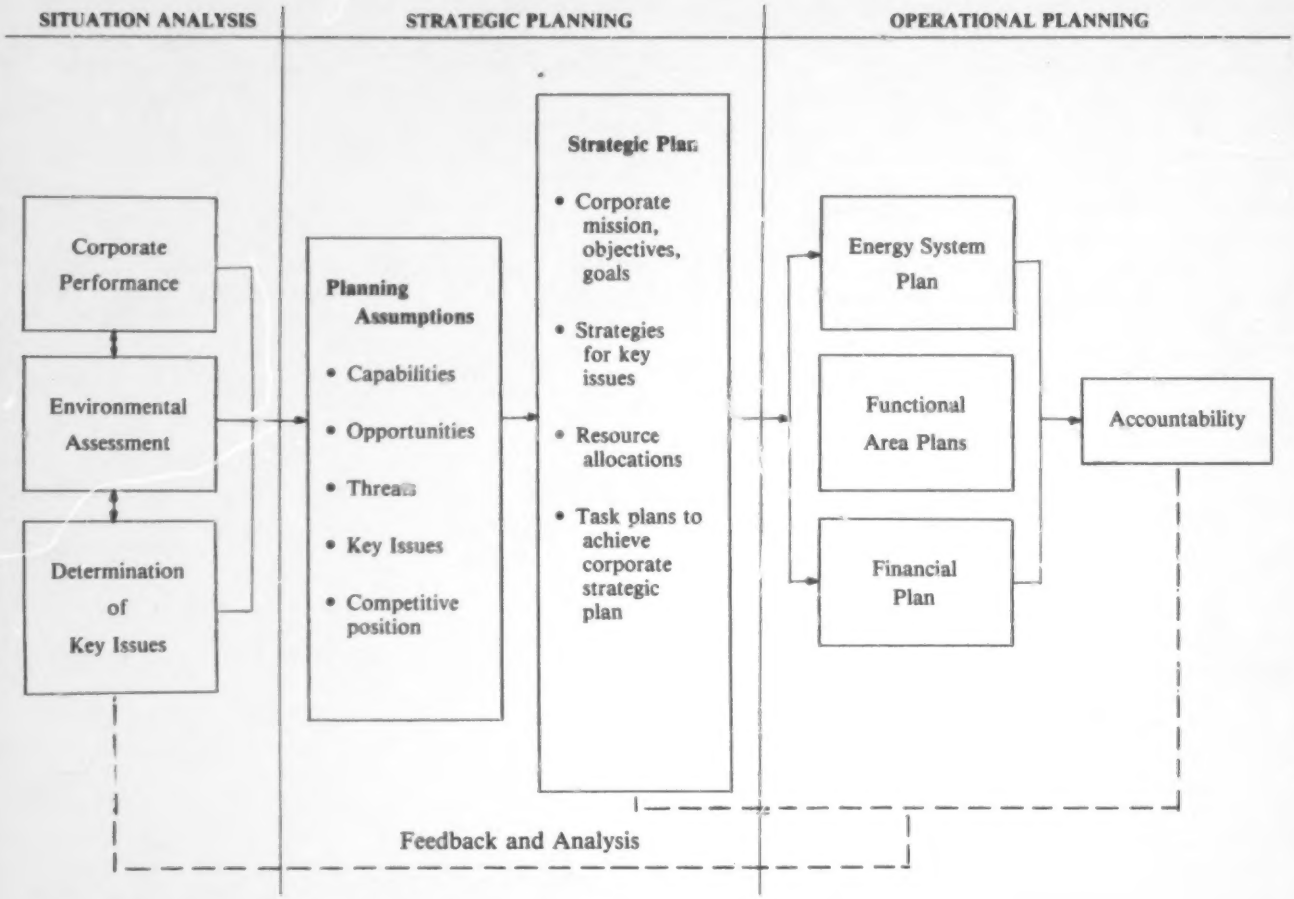


The Strategic Planning Process in Utilities

As expected, there is a wide variance in how utilities carry out the strategic planning mandate within their organization. Obviously, no one "planning system" will meet the needs of all companies. Planning processes of utilities tend to conform to the organizational structure and management style of each company. However, based on an analysis of company planning manuals, planning directives and strategic planners' own description of their planning procedures, a general planning model for electric utilities is

FIGURE 2

Strategic Planning Process of Electric Utilities



presented in Figure 2. The model highlights only the major phases of the utilities' strategic planning process.

All utilities initiate their strategic planning with a situation analysis. They define environmental factors likely to affect their operations, focusing on probable future developments that require special consideration in their planning. As in nonregulated companies, this step is carried out to determine where they currently stand. The three major activities in this phase include: (1) corporate performance evaluation, (2) environmental assessment, and (3) determination of key issues.

Corporate Performance

The overall assessment of corporate performance is conducted by top management (CEO, president, directors and/or senior executives). By evaluating the company's performance in light of its stated mission and objectives, past history and changes in its internal environmental conditions, top management attempts to answer the question: "Where are we?" They are assisted in this task by designated management teams which provide the needed research reports and analysis on the external and internal environments.

Environmental Assessment

The responsibility of scanning the environments rests on the company's officers and departmental managers. These executives, as members of planning teams or committees, assess the current and future conditions in both environments. Analysis of the external environment requires a review of the economic, market, social, technological and governmental/legal factors. Internally, the planning teams study the firm's conditions concerning its electric energy and support facilities, human resources, administrative and marketing activities.

Issue Determination

Environmental scanning enables senior executives and functional officers to evaluate potential corporate and interfunctional issues. These issues are viewed as "roadblocks" which are likely to prevent the forward progress of the company.

A company-wide uniform stance is essential for resolving corporate issues such as, prioritizing the allocation of resources to intensified demand in several markets, coping with strong external pressure on the company, or the need to strengthen its corporate image. Interfunctional issues are

generally resolved by functional officers with only minor assistance from the senior executives. Examples of these issues include: the development of appropriate utilization levels for the company's vehicles and equipment, processing of customer work orders, and the improvement of engineering capital cost controls.

Planning Assumptions

The results of the situation analysis phase are summarized in the firm's Planning Assumptions, a compilation of the corporate estimates of the future nature of the marketplace and business environment. For example, some key assumptions may include the following:

1. Financing of construction projects will become difficult and costly because of the intensified competition for available capital.
2. Estimating future electric power demand will become increasingly difficult because of competition, regional load shifts, price elasticity, conservation and government controls.
3. The more litigious nature of society will result in more litigation, claims and intervention against the Company.

These assumptions are supported by researched data for evaluation and approval purposes by the executive planning committee.

The identified issues and future conditions enable management to determine what opportunities and threats exist and the probability of their occurrences with their expected impact on its operations. Determination is then made as to where the company's strengths and weaknesses lie. For example, a utility may approach its strategic planning differently if it is aware that its current financial health leaves it vulnerable to a recession or deflationary period. As additional information becomes available through the feedback and analysis process, these assumptions may be modified or eliminated to reflect shifts in the environmental conditions.

Strategic Plans

The Planning Assumptions provide the basis for developing the firm's strategic plans. Within such a framework, utilities establish or revise their mission, objectives and goals. Targets in the key performance areas (service, rates, earnings, major projects, etc.) are based on the foregoing and provide the answers to the question: "What targets are we aiming at?" Strategies are then formulated to reach identified targets or to resolve key issues and are approved through the matching of prioritized plans to available resources.

Operational Plans

In the operational planning phase, the parameters established earlier help formulate specific strategies in the functional areas. Thus, the functional and interfunctional plans take their cues from the corporate strategies. For example, if it is determined that large amounts of capital required for future expansion will be expensive and difficult to obtain, one of the operational plans may be designed to help reduce the need for future system expansion through energy conservation programs.

Senior executives review all plans and resource allocations to ensure that there are no "planning gaps," i.e., lack of company resources for the drafted functional plans. If no discrepancy exists the functional plans are finalized and become operational commitments. If a discrepancy does exist, senior executives must review and set new priorities and performance levels to match the available supply of resources.

Accountability and Feedback

Control is maintained through the elements of accountability and feedback. Accountability attempts to answer the key questions of who will be responsible for executing which parts of the functional plans, how and when programs will be reported. Such agreements are worked out between the functional management and their middle and lower management teams.

Feedback and analysis of performance are conducted on a continuous basis. Performance progress or lack of it is analyzed at all levels — functional, interfunctional and corporate. The results of this monitoring activity are forwarded to top management and officers for managerial purposes and to maintain the ongoing strategic planning process.

Strategic Planning and Performance

Advocates of management planning systems maintain that organizations with "superior" planning systems will outperform those with less effective planning or with no planning systems. Several empirical studies have generated data tending to support this hypothesis (1,4,8 & 11]. Other studies have noted little or no correlation between formal planning and performance. Leontiades and Tezel, for example, reviewed six studies on the effect of planning on performance and found three of them reporting positive correlation and the other three claiming little or no correlation between formal planning and superior performance [6].

Henry conducted a study on why some companies with formal planners were unsuccessful [3]. He identified three major problem areas causing difficulties in implementing and using a formal planning system: (1) problems related to management attitudes and values, (2) the design of the formal planning system, and (3) the method of introducing and administering the system. Thus, even companies with formal planning, if burdened with these problems, will show poor corporate performance.

Return on Equity Capital

How do the utilities fare concerning the relationship between strategic planning and superior performance? Does strategic planning pay off for the electric utilities?

Using the survey data, responding companies were segmented according to their average rate of return on equity (ROE) for the past five years. The results, summarized in Table 1, disclosed a larger number of strategic planners were identified at the higher end of the ROE scale (over 11 per-

TABLE 1

Relationship Between Corporate Strategic Planning Practices and Average Earned Rate of Return on Equity of Investor Owned Utilities, 1982

Planning Variables	Average Rate of ROE** for Past 5 Years			
	Under 11%	11%-13%	Over 13%	Total
Corporate Strategic Plan:				
Yes	47%	75%	62%	61%
No	53	25	38	39
Total* %	100%	100%	100%	100%
N	(30)	(28)	(13)	(71)

**Totals may not add to 100 percent due to rounding.*
***ROE includes both diversified and multi-service utilities.*

cent). Of those companies earning an average rate of 11 to 13 percent and over 13 percent, approximately 75 and 62 percent, respectively, indicated that they were engaged in formulating corporate strategic plans. These observations, on the surface at least, seem to support studies which reported that strategic planners did better than nonplanners in profits earned.

Utilities with favorable financial performance also seem to recognize the importance of involvement of line officers in the strategic planning process. Their planning manuals and directives emphasize the significance of officers and managers implementing the plans and also doing the actual planning. Planning groups and staff personnel are viewed as facilitators and refrain from doing the planning. Where there is direct involvement of line organization personnel and explicit support of the company's CEO, the planning process and the strategic plans have been well received.

The foregoing, however, should not be construed to mean strategic planning is the sole cause of these firms' favorable ROE. Other factors such as regulatory climate, cost-effective operations and well-managed organizations are possible contributors to the companies' superior performances.

TABLE 2

Earned Rate of Return on Equity and Regulatory Climate, 1982

Regulatory Climate	Average Rate of ROE** for Past 5 Years			
	Under 11%	11%-13%	Over 13%	Total*
Very Favorable	0%	0%	15%	3%
Favorable	38	39	62	43
Unfavorable	52	57	23	49
Very Unfavorable	10	4	0	6
Total* %	100%	100%	100%	100%
N	(29)	(28)	(13)	(70)

**Totals may not add to 100 percent due to rounding.*
***ROE includes both diversified and multi-service utilities.*

Influence of Regulatory Climate on Performance

Utilities are particularly sensitive to the regulatory climate impacting on their operations. They maintain that the attitude of the regulators in reviewing applications for rate increases has a pervading influence on their planning activities with frequently negative effect on their performances.

In responding to the question on the nature of the regulatory environment in their state, 46 percent of the companies reported that it was favorable to very favorable (Table 2). However, for utilities earning 13 percent or less on their equity, over 60 percent stated that their regulatory climate was unfavorable to very unfavorable. Interestingly, 77 percent of the companies earning an ROE of over 13 percent considered the regulatory environment to be favorable to very favorable. Only 23 percent of these high ROE earners reported an unfavorable regulatory climate; no company indicated it was very unfavorable.

A good regulatory climate is no assurance of high returns but it does appear to be a factor in attaining their profit goals. In fact, most of the utilities considered the nature of their regulatory climate as one of the key items in their Planning Assumptions.

A chi-squared test of the data presented in Table 2 did find a significant relationship between earned ROE and the regulatory environment. With a computed value of 6.27 for the chi-squared statistic, the null hypothesis of no relationship could be rejected at the .05 level of significance.

CONCLUSIONS

The impact of the dramatic changes occurring in the electric power industry is being felt with increasing intensity by the utilities. They are aware of these changes but individual firms differ in their ability to cope with them. For some utilities, it seems appropriate to reassess their basic direction and redefine their corporate mission. Strategic planning should facilitate the task of conducting this reassessment.

Although a majority of the respondents (61 percent) are beginning to incorporate some aspects of the strategic planning process in their organizations, only a handful are actually involved with strategic planning on a sophisticated level. Most of them appear to be in the initial stages of the planning process and are encountering obstacles at various levels of management within their organization. The few utilities with established strategic planning systems appear to be as advanced in their planning approaches as those in the nonregulated companies.

Strategic planning is only slowly making inroads in most of the utilities' planning processes as evidenced by the apparent lack of computer driven models that allow management to ask "what if" type questions. The focus still seems to be on engineering and special purpose accounting software. In spite of such difficulties, a positive relationship exists between those utilities with corporate strategic planning and a higher rate of return on equity capital.

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$100 Home Computers, Video Games Becoming "Single Product Line"

NEW YORK--In the next six months, it's going to be tougher to tell the difference between a $100 home computer and new "juiced up" video game machines, according to *Computer + Software News*, a weekly marketing newspaper in the personal computer field.

Current distinctions between video game machines and home computers have been blurred by the recent debut of Atari's "My First Computer," a $100 keyboard that converts Atari's VCS 2600 into a home computer capable of playing games and balancing a checkbook.

At the same time, computer-makers like Texas Instruments are launching new lines of lower-priced computers. Example: TI's new under $100 99/2 computer, which is priced right at the game market and carries the "horsepower" to combine entertainment and educational functions.

According to *Computer + Software News*, at least a dozen new $100 products that turn video games into computers or have both computing power and game-playing capacity have been introduced to the market over the past 60 days.

The result has been the reallignment of product marketing groups at companies like Atari where home video and home computer products are now being marketed under a single division.

"There is no black and white anymore," points out Editor Douglas W. Stinson. "Competition in the field now requires game-playing and computer-power to the lowest possible price points, leading logically to a single product-marketing group. Unified research and development efforts, marketing strategies and production facilities will become the norm for the rest of the 1980s."

Source: News Release by LEBHAR-FRIEDMAN, Inc., New York, N.Y.

Excerpts from the Las Vegas Visitor Profile Study, 1982

By the Editor

Las Vegas Profile Studies are published quarterly, followed by a Composite Report for each fiscal year. The Profile Studies are prepared by Marketing Research and Development, Inc. for the Las Vegas Convention and Visitors Authority.

A copy of the full report may be obtained, on request, from

Las Vegas Convention/Visitors Authority
3150 Paradise Road
Las Vegas, Nevada 89109-9096.

Objectives

Visitor profile studies are designed to provide management of hotel-casinos, management consultants, and government agencies with a fundamental understanding of the Las Vegas visitor and the Las Vegas market.

The Las Vegas Profile Study for fiscal year 1982 (July 1, 1981-June 30, 1982) enumerates specific objectives as follows:

1. Provide a multi-dimensional profile of visitors to Las Vegas.
2. Provide data that can be used in strategic marketing planning.
3. Identify problem areas and marketing opportunities.
4. Identify and analyze various market segments and target markets.
5. Ascertain visitor travel patterns.
6. Analyze travel agent usage.
7. Describe visitor behavioral patterns while in Las Vegas.
8. Measure gaming and non-gaming expenditures in the market.
9. Relate expenditures to other visitor characteristics.
10. Determine the socio-demographic structure of the Las Vegas market.
11. Examine differences among various types of visitors.
12. Provide visitor suggestions for improving the market.
13. Provide structure/variables/data compatible with in-house, external, census, and syndicated data files.
14. Monitor trends occurring in the marketplace.
15. Generate implications of the research findings.

Management sophistication and professionalism in the Las Vegas market are evident in the ways data generated by the Visitor Profile Study are being used. The study provides a data base for developing target markets, model building, feasibility studies, forecasting sales, composing promotional copy, determining budget allocations and marketing plans.

Sample Design

Two thousand visitors (respondents) were scientifically selected for the study. A visitor is defined as a non-resident of Clark County, Nevada, at least twenty-one years old, and on vacation, business, personal emergency, or attending a convention. Charter and junket visitors were included. Respondents consisted of visitors departing Las Vegas by different modes of transportation.

A proportional multi-stratified quota and systematic sampling approach was used in scientifically selecting visitors for the sample. Strata proportions were based upon known macro characteristics of the Las Vegas Market.

The visitor population was divided into four strata (categories) based upon mode of transportation used in departing Las Vegas. Airline visitors represented 840 respondents, or 42 percent of the sample. Bus visitors represented 160 respondents, or 8 percent of the sample. Train visitors represented 20 respondents, or 1 percent of the sample. Automobile visitors represented 980 respondents, or 49 percent of the sample. The results of the research project are conclusive, i.e., the sample results can be projected to the entire market, and can be used as a basis for decision-making and strategic planning for the Las Vegas Market.

Field Methodology

A self-administered questionnaire was completed by the respondent during a personal interview. This approach reduced interviewer bias while maintaining a low and controllable refusal rate. In certain cases, foreign language interpretation was utilized.

Interviews were conducted continuously from July 1, 1981 through June 30, 1982. Interviewers established contact with randomly selected respondents, and then asked them to complete the form. The interviewers explained any questions that were not understood, and they immediately field-edited each questionnaire for completeness, correctness, legitimacy, and consistency after the respondent had finished filling out the form. Any discrepancies were resolved by asking the respondent additional questions. Subsequent de-briefing sessions were held with the interviewers.

Selected Highlights of the Visitor Profile Study (FY1982)

The highlights below reveal that the average (unadjusted) dollar value of the Las Vegas visitor's gambling budget, as well as average expenditures on nongambling expenses, has trended upward over the three year period, 1980-1982. However, it is notable that the average gambling budget declined in 1982 from the level of 1981 (item 9 below). Most of the visitors who came to Las Vegas in 1982 were residents of western states, especially southern California. Most of the foreign visitors interviewed were from Canada.

1. 7% of FY 1982 visitors were in Las Vegas to attend a convention.
2. 6% of FY 1982 visitors were part of a charter group.
3. 2% of FY 1982 visitors were in Las Vegas on a junket trip.
4. 79% of Las Vegas visitors in FY 1982 were on vacation.
5. The average length of stay for FY 1982 visitors was 4.2 days. (This compares with an average of 4.3 days for FY 1980 and 4.2 for FY 1981.)*
6. 40% of FY 1982 visitors booked accommodations through a travel agent.
7. 33% indicated that travel agents influenced their choice of lodging.
8. FY 1982 visitors to Las Vegas attended an average of 1.4 shows.
9. The average gambling budget for FY 1982 visitors was $793. (This compares with an average of $586 for FY 1980 and $945 for FY 1981).* Details are presented in Table 1, below.
10. The average FY 1982 visitor spent $147 per day for non-gambling expenses. (This compares with an average of $124 per day for non-gambling expenses for FY 1980 and $142 per day for FY 1981).* Details are presented in Table 2, below.
11. 50% of FY 1982 visitors were under 45 years of age.
12. 57% of FY 1982 visitors were residents of the Western Region of the United States.
13. 63% of foreign visitors interviewed were from Canada.
14. 48% of FY 1982 visitors resided within 400 miles of Las Vegas.
15. 64% of FY 1982 visitors from the Western Region resided in California.
16. 94% of California visitors were from southern California.
17. 56% who were from the Los Angeles Metropolitan area traveled to Las Vegas by automobile.
18. 12% of spring quarter visitors indicated they had visited Atlantic City for casino gambling.

The average gambling budget for FY1982 visitors was $793.00. The most frequent trip initial drop was $500.00. The gambling budget ranged from $0 to $50,000.

9% of the visitors did not gamble. Greater than 5% peaks occurred at $0, $100.00, $200.00, $300.00, $500.00, and $1,000.00.

*FY 1981 results are based on the first six calendar months of 1981.

TABLE 1

Visitor Gambling Budget

[How much did you budget for gambling? (Indicate how much you dropped during your visit to Las Vegas — Include credit but not winnings)]

Class	Budget Categories	No.	PCT.	Cumulative Percentage
L.	$ 0 - 25	239	12%	12%
K.	26 - 50	84	4%	16%
J.	51 - 75	21	1%	18%
I.	76 - 100	180	9%	27%
H.	101 - 150	59	3%	30%
E.	151 - 200	201	10%	40%
F.	201 - 300	211	11%	51%
E.	301 - 400	105	5%	56%
D.	401 - 500	242	12%	68%
C.	501 - 1,000	334	17%	85%
B.	1,001 - 5,000	257	14%	98%
A.	More than $5,000	34	2%	100%
Total**		1,967	100%	100%

60% of the visitors dropped more than $200.00 during their visit to Las Vegas. 40% of the Las Vegas market budgeted $200.00 or less for gambling.

Considering that the average length of stay during FY1982 was 4.2 days, the average daily gambling budget for all visitors interviewed was $189.00.

The standard error of the sample was $43.00. The 95% confidence interval ranged from $709.00 to $877.00. The impact of one outlier ($50,000.00) on the average gambling budget was approximately $25.00. There were two maximum outliers of $20,000.00 and one of $50,000.00 during FY1982.

Average Gambling Budget

QUARTER	AVERAGE (BUDGET)
Summer	$621
Fall	$837
Winter	$977
Spring	$740
Overall	$793

The tabulation indicates that the average gambling budget varied significantly across quarters in FY1982 (ANOVA; $F = 3.13$; $p = .03$).

It should be noted that the term "gambling budget" is considered synonymous with the terms "original (initial) drop," "bank-roll," and "amount willing to lose." It is not

**33 visitors (2%) did not respond to this question.

the same as "casino drop," the "wager," the "action," the "handle," or the "bet." The actual amount lost would be a percentage of the budget (not the same as the percentage of casino drop) and would be equivalent to the house "hold," "win," or "gaming revenue." Also the gambling budget is perceived by the visitor to be his personal fund. Hence, the analyst would not divide the average daily gambling budget (as in the case of non-gaming expenditures) by the party size to project the gaming revenues of the entire market.

Source: a reproduction of Table 9, p. 9, *Las Vegas Visitor Profile Study, 1982.*

TABLE 2

Average Daily Expenditures

(How much did you spend, per day, on the average, for the following non-gambling expenses?)

	A	B	C	D	E
Expense Categories	Active Average[1]	Overall Average[2]	Most Frequent (Typical)[3]	Visitor Base[4]	Expenditure Range
1. Room	$50	$ 46	$ 50	1,873	$5 - $ 350
2. Shows	$50	$ 28	$ 50	1,141	$1 - $ 375
3. Food/Drink	$41	$ 39	$ 50	1,939	$3 - $ 700
4. Gifts/Cloth./ Pers. Items	$41	$ 23	$ 10	1,111	$1 - $1,000
5. Ground Transp.[5]	$18	$ 11	$ 10	1,199	$1 - 300
Selected Totals		$147	$170		

Column A in Table 2 indicates that an *active* FY1982 visitor to Las Vegas spent, *per day, on the average,* $50 for a room; $50 for shows; $41 for food and drink; $41 for gifts, clothing, and personal items; and $18 for ground transportation. However, since these figures do not represent averages based on all the visitors interviewed, some readers will find Column B to be more informative.

Column B indicates that an *average Las Vegas visitor* in FY1982 spent a total of $147 per day for non-gambling expenses while in Las Vegas. A quarterly comparison of average visitor expenditures during the year produced the following: Summer = $141; Fall = $159; Winter = $146; and Spring = $146. It should be noted that the average Las Vegas visitor spent money for 1.8 persons. This would result in an average daily expenditure per person in FY1982 of approximately $82, which is projectionable to the entire Las Vegas visitor market of about 12 million.

The Column C total, which is a simple addition of the most frequent expenditures in each category, indicates a total of $170 per day spent for non-gambling expenses.

Dividing the estimated total most frequent expenditure of $170 by the nuclear party size of 1.8 persons indicates that the most frequent expenditure per person per day across the entire Las Vegas market was $94.

Average Daily Expenditures by Quarter (Active Visitors)

Quarter	Room	Shows	Food/ Drink*	Gifts/Cloth./ Pers. Items*	Ground Transp.
Summer	$50	$51	$37	$37	$19
Fall	$51	$51	$42	$51	$19
Winter	$49	$48	$40	$38	$18
Spring	$48	$48	$43	$39	$17
Overall	$50	$50	$41	$41	$18

The tabulation indicates the average daily expenditures by quarter for all active visitors interviewed during FY1982.

Source: A reproduction of Table 10, p. 10, *Las Vegas Visitor Profile Study, 1982.*

[1]The active dollar averages are only for those visitors who actually spent money in the respective categories.

[2]The overall average is determined by dividing the total amount spent in any category by the 2,000 visitors who were interviewed during FY1982.

[3]The most frequent (typical) average is based on the mode measure of central tendency for the active visitor.

[4]Number of visitors in the sample who were active, i.e., who actually spent money.

[5]Includes gas and car rental in Las Vegas.

*Statistically significant difference across quarters at .05 level.

Nevada Economic Indicators

Statewide Statistical Data

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1982 1st Quarter-1983
Total Labor Force (000's)	484.1†	488.2†	492.8	488.4	+ .2	+ 3.5
Total Employment (000's)	424.4†	428.1†	437.0	429.8	– .6	+ .8
Unemployment (000's)	59.9†	60.1†	55.8	58.6	+ 7.0	+ 29.1
Unemployment Rate	12.4†	12.3†	11.3	12.0	+ 6.5	+ 25.0
Unemployment Rate (Seasonally Adjusted)	11.1†	11.3†	10.8	11.1	– 2.9	+ 21.2
Agricultural Empl. (000's)	3.5†	3.5†	4.2	3.7	– 14.5	+ 1.8
Establishment Based Industrial Employment						
Total All Industries (000's)	399.1†	399.7†	403.0	400.6	– 2.7	– .2
Mining	5.9†	5.9†	6.0	5.9	– 11.4	– 18.3
Contract Construction	19.1†	18.8†	19.4	19.1	– 13.2	– 3.7
Manufacturing	17.9†	18.1†	18.1	18.0	– 4.8	– 7.0
Transportation & Utilities						
Transportation	12.5†	12.3†	12.4	12.4	– 6.5	– 3.4
Railroads	1.8†	1.8†	1.8	1.8	+ 0.0	+ 0.0
Air	2.5†	2.6†	2.6	2.6	– 7.2	– 14.4
Public Utilities	11.7†	11.6†	11.7	11.7	– .6	– 3.3
Total Trade	80.0†	79.6†	80.1	79.9	– 6.0	+ .1
Wholesale Trade	13.5†	13.5†	13.5	13.5	– 1.9	– 2.6
Retail Trade	66.5†	66.1†	66.6	66.4	– 6.8	+ .7
Finance, Ins., Real Estate	17.9†	17.9†	18.0	17.9	+ .4	– .9
Service Industries	176.8†	176.7†	178.2	177.2	– .4	+ 2.1
Hotels, Amusement and Recreation Combined	114.7†	114.9†	115.9	115.2	+ .1	+ 1.8
Medical and Health	15.7†	15.7†	15.7	15.7	+ .6	+ 2.6
Total Government	57.3†	58.8†	59.1	58.4	+ 0.0	– .5
Federal	9.4†	9.5†	9.5	9.5	+ 1.4	– .7
State and Local	47.9†	49.3†	49.6	48.9	– .3	– .5
Education	19.4†	20.8†	21.2	20.5	– 2.8	– 1.0
Average Weekly Earnings in Selected Industries						
Mining	508.73†	477.90†	488.33	491.65	+ 2.3	+ 5.6
Construction	584.78†	595.94†	584.50	588.41	– 3.5	+ 8.2
Manufacturing	331.76†	334.15†	340.28	335.40	– .2	+ 3.2
Public Utilities	469.58†	447.66†	460.00	459.08	+ 2.0	+ 11.8
Trade	255.41†	258.62†	265.44	259.82	+ .2	+ 3.1
Average Weekly Hours in Selected Industries						
Mining	42.5†	40.5†	42.5	41.8	+ 1.9	+ .8
Construction	34.5†	35.2†	35.0	34.9	+ 1.0	+ 5.5
Manufacturing	37.7†	37.8†	37.6	37.7	– .6	+ 1.0
Public Utilities	41.3†	39.2†	40.0	40.2	+ .2	+ 1.9
Trade	33.3†	33.5†	33.9	33.6	– 2.6	+ .4
Average Hourly Earnings in Selected Industries						
Mining	11.97†	11.80†	11.49	11.75	+ .4	+ 4.7
Construction	16.95†	16.93†	16.70	16.86	– 4.3	+ 2.5
Manufacturing	8.80†	8.84†	9.05	8.90	+ .4	+ 2.1
Public Utilities	11.37†	11.42†	11.50	11.43	+ 1.8	+ 9.6
Trade	7.67†	7.72†	7.83	7.74	+ 2.9	+ 2.7
Construction Activity						
Residential ($000's)	55,000	57,800	106,500	219,300	+ 42.1	+ 60.2
Nonresidential ($000's)	25,700	16,200	17,100	59,000	– 19.6	– 41.9
Nonbuilding ($000's)	7,400	14,600	7,100	29,100	+ 5.4	– 39.9
Total ($000's)	88,200	88,500	130,600	307,300	+ 20.4	+ 7.1
# of New Dwelling Units	897	1,187	1,664	3,748	+ 9.5	+ 45.3
Banking Activities ($000,000's)						
Loans	2,150	2,290	2,121	2,187	+ 2.8	+ 4.7
Investments	615	632	701	649	+ 8.8	– 3.0
Total Deposits	3,178	3,220	3,200	3,199	+ .7	+ 11.7
Demand Deposits	874	942	905	907	– 2.8	– 2.2
Time & Savings Deposits	2.301	2,275	2,292	2,289	+ 2.2	+ 18.6

Statewide Statistical Data (Continued)

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1983 1st Quarter-1983
Total Deposits	2,978	2,982	3,084	3,014	– .1	+ 10.6
Demand Deposits	906	920	933	919	– 1.1	– 4.3
Time & Savings Deposits	2,069	2,060	2,147	2,092	+ .4	+ 18.9
Tax Collections ($)						
Liquor	655,860	746,420	1,041,924	2,444,204	– 22.4	– 3.2
Cigarette	1,281,254	821,306	843,935	2,946,495	– 12.9	– 9.4
Fuel	3,456,677	3,256,719	2,959,092	9,672,488	– 8.2	+ 8.1
Taxable Sales ($000's)	–	–	–	1,491,981	– 9.1	– 3.2
Gaming Revenues ($000's)	–	–	–	654,325	+ 9.1	+ 2.4
Highway Traffic Flow						
17 Selected Stations (Avg. Daily)	79,560	84,988	91,484	85,344	– 9.1	+ .9

† Revised.

Las Vegas Standard Metropolitan Statistical Area

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1982 1st Quarter-1983
Total Labor Force (000's)	272.2†	274.7†	276.7	274.5	+ .7	+ 3.7
Total Employment (000's)	238.7†	240.7†	245.1	241.5	+ 1.0	+ 1.2
Unemployment (000's)	33.5†	34.0†	31.6	33.0	– 1.5	+ 26.2
Unemployment Rate	12.3†	12.4†	11.4	12.0	– 2.2	+ 22.0
Unemployment Rate (Seasonally Adjusted)	11.9†	12.1†	17.1	13.7	+ 10.8	+ 38.4
Agricultural Employment (000's)	.6†	.6†	.7	.6	– 9.5	+ 0.0
Establishment Based Industrial Employment						
Total All Industries (000's)	227.1†	227.2†	228.8	227.7	– .9	+ .6
Mining	.4†	.4†	.4	.4	– 14.3	– 25.0
Contract Construction	11.9†	11.7†	12.0	11.9	– 10.6	– 2.2
Manufacturing	6.5†	6.6†	6.6	6.6	– 4.4	– 5.3
Transportation & Utilities						
Transportation	7.5†	7.4†	7.6	7.5	– 4.3	– 2.2
Railroads	.7†	.7†	.7	.7	+ 0.0	+ 0.0
Air	2.0†	2.0†	2.0	2.0	– 11.8	– 16.7
Public Utilities	6.1†	6.1†	6.0	6.1	+ 1.1	+ 0.0
Total Trade	45.8†	45.7†	45.9	45.8	– 4.8	– .3
Wholesale Trade	6.3†	6.3†	6.3	6.3	– .5	+ 0.0
Retail Trade	39.5†	39.4†	39.6	39.5	– 5.5	– .3
Finance, Ins., Real Estate	10.2†	10.3†	10.4	10.3	+ .3	– .3
Service Industries	111.7†	111.4†	112.0	111.7	+ 2.4	+ 2.5
Hotels, Gaming & Recreation	73.2†	73.2†	73.5	73.3	+ 4.6	+ 2.7
Total Government	27.0†	27.6†	27.9	27.5	– 1.0	– 1.0
Federal	4.9†	4.9†	4.9	4.9	+ 0.0	– 2.0
State and Local	22.1†	22.7†	23.0	22.6	– 1.2	– .7
Education	9.6†	10.1†	10.4	10.0	– 4.4	– 3.5
Construction Activity						
Las Vegas						
Residential ($000's)	14,838	8,857	6,300	29,995	+ 97.3	+ 86.4
Nonresidential ($000's)	5,071	9,420	9,632	24,123	+ 6.6	– 40.4
Total Value ($000's)	19,909	18,277	15,932	54,118	+ 43.4	– 4.4
# of New Family Units	115	131	176	422	+ 32.3	– 8.1
North Las Vegas						
Residential ($000's)	1,009	1,265	646	2,920	+ 17.8	+ 122.1
Nonresidential ($000's)	151	98	1,109	1,358	+ 85.3	– 16.6
Total Value ($000's)	1,160	1,363	1,756	4,279	+ 33.3	+ 45.4
# of Permits	42	52	73	167	+ 20.1	+ 7.7
Energy Consumption						
Sales (000's KWH)	471,914	360,915	402,313	1,235,142	– 4.7	– 7.5
# of Customers	205,340	205,706	205,081	205,376	+ .4	+ 2.6
Taxable Sales ($000's)	–	–	–	855,528	– 5.7	– .6
Gaming Revenues ($000's)	–	–	–	461,419	+ 14.6	+ 2.4
Air Transportation-McCarran						
Passengers (Arr. & Depart.)	772,790	819,871	976,710	2,569,371	+ 12.4	+ 5.4
Cargo Enplaned (lbs.)	914,845	768,806	1,049,853	2,733,504	– 9.5	+ 11.3
Cargo Deplaned (lbs.)	1,671,757	1,339,555	1,668,062	4,679,374	– 7.0	– 11.0
Highway Traffic Flow						
4 Selected Stations (Avg. Daily)	24,903	26,382	28,280	26,521	– 4.8	+ 4.1
Room Tax ($)						
Clark County	1,230,375	1,374,149	1,696,123	4,300,647	+ 10.7	– .7
Las Vegas City	210,940	225,039	257,758	693,737	+ 11.5	– .9
SMSA Total	1,447,206	1,604,232	1,958,898	5,010,336	+ 10.8	– .7

†Revised.

Reno Standard Metropolitan Statistical Area

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1982 1st Quarter-1983
Total Labor Force (000's)	132.2†	133.1†	134.6	133.3	– .5	+ 2.9
Total Employment (000's)	117.4†	118.5†	120.9	118.9	– 2.7	– .1
Unemployment (000's)	14.8†	14.6†	13.7	14.4	+ 22.1	+ 36.0
Unemployment Rate	11.2†	11.0†	10.2	10.8	+ 22.7	+ 31.7
Unemployment Rate (Seasonally Adjusted)	9.0†	9.3†	9.1	9.1	+ 3.0	+ 32.4
Agricultural Employment (000's)	.4†	.4†	.5	.4	– 13.3	+ 0.0
Establishment Based Industrial Employment						
Total All Industries (000's)	110.6†	110.7†	111.7	111.0	– 4.4	– .8
Mining	.6†	.6†	.6	.6	– 14.3	+ 0.0
Contract Construction	4.5†	4.3†	4.5	4.4	– 16.4	– 5.0
Manufacturing	7.4†	7.4†	7.5	7.4	– 3.9	– 9.0
Transportation & Utilities						
Transportation	3.7†	3.6†	3.6	3.6	– 6.0	– 4.4
Railroads	.5†	.5†	.5	.5	+ 0.0	+ 0.0
Public Utilities	4.2†	4.2†	4.2	4.2	+ 2.4	– 7.4
Total Trade	24.6†	24.3†	24.3	24.4	– 7.6	+ 1.1
Wholesale Trade	6.1†	6.1†	6.2	6.1	– 4.2	– 4.2
Retail Trade	18.5†	18.2†	18.1	18.3	– 8.7	+ 3.0
Finance, Ins., Real Estate	6.0†	5.9†	6.0	6.0	+ 1.7	– 3.8
Service Industries	43.2†	43.3†	44.0	43.5	– 4.4	+ 1.2
Hotels, Gaming & Recreation	26.8†	27.0†	27.6	27.1	– 7.3	– .4
Total Government	16.4†	17.1†	17.0	16.8	+ 1.0	+ .2
Federal	2.7†	2.8†	2.7	2.7	+ 3.8	+ 1.2
State and Local	13.7†	14.3†	14.3	14.1	+ .5	+ 0.0
Education	6.1†	6.8†	6.8	6.6	– 3.4	+ .5
Construction Activity						
Reno						
Residential ($000's)	2,396	2,140	2,097	6,633	– 27.7	– 5.0
Nonresidential ($000's)	2,167	8,226	6,096	16,489	+ 37.6	+ 55.3
Total Value ($000's)	4,563	10,366	8,193	23,122	+ 9.3	+ 31.4
# of New Family Units	61	55	51	167	– 26.8	– 16.1
Sparks						
Residential ($000's)	1,220	1,822	1,382	4,424	+ 5.7	+ 114.2
Nonresidential ($000's)	423	1,241	5,967	7,631	+ 299.1	+ 126.2
Total Value ($000's)	1,643	3,063	7,349	12,055	+ 97.7	+ 121.7
# of New Family Units	27	40	29	96	– 4.0	+ 140.0
Washoe County (Unincorporated)						
Residential ($000's)	3,380	2,624	1,865	7,869	– 60.4	+ 47.7
Nonresidential ($000's)	241	504	756	1,501	– 50.4	+ 10.0
Total Value ($000's)	3,621	3,128	2,621	9,370	– 59.0	+ 40.0
# of New Family Units	47	32	23	102	+ 4.1	+ 104.0
Taxable Sales ($000's)	–	–	–	338,928	– 15.4	– 8.1
Gaming Revenues ($000's)	–	–	–	115,828	– 5.3	+ .2
Air Transportation-Reno						
Passengers (Arr. & Depart.)	209,220	224,911	256,471	690,602	+ 12.6	+ 2.8
Cargo Enplaned (lbs.)	476,318	460,635	520,639	1,457,592	– 20.1	+ 5.1
Cargo Deplaned (lbs.)	576,053	512,587	644,404	1,733,047	– 7.5	+ 8.3
Highway Traffic Flow						
7 Selected Stations (Avg. Daily)	46,452	49,193	52,364	49,336	– 9.0	+ .2
Room Tax ($)						
Washoe County	51,203	47,781	49,655	148,639	+ 2.9	– 3.5
Reno	318,495	323,557	401,158	1,043,210	– 41.6	+ 1.4
Sparks	20,385	20,998	24,811	66,194	– 38.7	+ 7.3
SMSA Total	390,083	392,336	475,625	1,258,044	– 38.3	+ 1.1

† Revised.

Nevada Statistical Data by County

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1982 1st Quarter-1983
CARSON CITY						
Total Labor Force	20,350†	20,670†	20,790	20,603	– 3.0	+ 3.0
Total Employment	17,420†	17,620†	17,970	17,670	– 5.6	+ 1.4
Unemployment	2,930†	3,050†	2,820	2,933	+ 16.7	+ 14.0
Unemployment Rate	14.4†	14.8†	13.6	14.3	+ 20.2	+ 11.2
Construction Activity						
Residential Value ($000's)	211	646	881	1,738	+ 58.6	+ 71.2
Nonresidential Value ($000's)	82	473	55	610	– 69.4	+ 22.2
Total Value ($000's)	293	1,119	936	2,348	– 24.0	+ 55.1
# of New Family Units	4	9	13	26	+ 160.0	+ 225.0
Taxable Sales ($000's)	–	–	–	43,829	– 9.6	+ 3.2
Gaming Revenues ($000's)	–	–	–	6,595	– 14.8	– 1.1
CHURCHILL						
Total Labor Force	6,620†	6,710†	6,890	6,740	+ .4	+ 7.2
Total Employment	5,540†	5,630†	5,820	5,663	– .9	+ 4.2
Unemployment	1,080†	1,080†	1,070	1,076	+ 8.4	+ 26.2
Unemployment Rate	16.3†	16.1†	15.5	16.0	+ 7.9	+ 17.4
Construction Activity						
Residential Value ($000's)	78	78	181	337	– 58.1	– 14.5
Nonresidential Value ($000's)	79	98	55	232	– 65.4	– 48.1
Total Value ($000's)	157	176	136	469	– 68.2	– 44.2
# of New Family Units	1	1	3	5	– 70.6	+ 25.0
Taxable Sales ($000's)	–	–	–	11,852	– 17.4	– 1.5
Gaming Revenues ($000's)	–	–	–	984	– 4.6	+ 21.8
DOUGLAS						
Total Labor Force	8,140†	8,290†	8,450	8,293	– 1.2	– 1.5
Total Employment	7,030†	7,200†	7,480	7,236	– 3.5	– 3.1
Unemployment	1,110†	1,090†	970	1,056	+ 18.3	+ 11.2
Unemployment Rate	13.6†	13.2†	11.5	12.8	+ 19.7	+ 13.3
Taxable Sales ($000's)	–	–	–	41,891	+ 8.8	+ 14.4
Gaming Revenues ($000's)	–	–	–	51,385	+ 5.5	+ 2.8
ELKO						
Total Labor Force	12,610†	12,730†	12,900	12,746	+ 4.7	+ 6.0
Total Employment	10,960†	11,090†	11,490	11,180	+ 1.2	+ 2.9
Unemployment	1,650†	1,640†	1,410	1,566	+ 38.2	+ 35.1
Unemployment Rate	13.1†	12.9†	10.9	12.3	+ 32.7	+ 27.2
Construction Activity						
Elko City						
Residential ($000's)	24	13	332	369	– 51.5	+ 88.3
Nonresidential ($000's)	158	681	54	893	– 40.7	+ 296.9
Total Value ($000's)	182	694	386	1,262	– 44.3	+ 199.8
# of New Dwelling Units	0	0	8	8	– 57.9	+ 60.0
Taxable Sales ($000's)	–	–	–	27,804	– 21.6	– .9
Gaming Revenues ($000's)	–	–	–	13,120	+ 15.1	+ 25.3
ESMERALDA						
Total Labor Force	430†	430†	420	426	+ 10.3	– 8.6
Total Employment	360†	350†	350	353	+ 12.8	– 14.5
Unemployment	70†	80†	70	73	+ 0.0	+ 37.5
Unemployment Rate	17.1†	18.4†	16.0	17.2	– 14.3	+ 48.0
Taxable Sales ($000's)	–	–	–	1,661	+ 28.0	+ 109.7
EUREKA						
Total Labor Force	730†	720†	780	743	– 4.3	+ 4.2
Total Employment	600†	610†	660	623	– 5.6	– 4.1
Unemployment	130†	110†	120	120	+ 2.9	+ 89.5
Unemployment Rate	17.3†	14.8†	15.4	15.8	+ 4.6	+ 77.2
Taxable Sales	–	–	–	1,514	– 37.7	+ 48.1

Nevada Statistical Data by County (Continued)

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1983 1st Quarter-1983
HUMBOLDT						
Total Labor Force	5,400†	5,390†	5,490	5,426	– 7.2	– .9
Total Employment	4,500†	4,520†	4,700	4,573	– 11.8	– 6.8
Unemployment	900†	870†	790	853	+ 29.3	+ 49.7
Unemployment Rate	16.7†	16.1†	14.4	15.7	+ 38.8	+ 50.8
Taxable Sales ($000's)	–	–	–	20,513	+ 8.0	+ 62.8
Gaming Revenues ($000's)	–	–	–	1,537	– 16.1	+ 7.9
LANDER						
Total Labor Force	2,560†	2,620†	2,700	2,626	– 1.6	+ 2.9
Total Employment	2,190†	2,210†	2,280	2,226	– 5.1	– 5.8
Unemployment	370†	410†	420	400	+ 23.7	+ 110.5
Unemployment Rate	14.4†	15.7†	15.4	15.2	+ 25.0	+ 105.0
Taxable Sales ($000's)	–	–	–	9,158	+ 14.8	+ 50.8
Gaming Revenues ($000's)	–	–	–	183	– 16.4	+ 7.0
LINCOLN						
Total Labor Force	2,730†	2,750†	2,750	2,743	– 7.6	+ .7
Total Employment	2,370†	2,390†	2,440	2,400	– 8.0	– 1.4
Unemployment	360†	360†	310	343	– 4.6	+ 18.4
Unemployment Rate	13.1†	13.1†	11.2	12.5	+ 3.6	+ 18.0
Taxable Sales ($000's)	–	–	–	1,595	– 28.4	– 54.2
LYON						
Total Labor Force	5,350†	5,390†	5,540	5,426	+ 11.6	+ 9.7
Total Employment	4,390†	4,500†	4,720	4,536	+ 10.3	+ 6.1
Unemployment	960†	890†	820	890	+ 18.7	+ 32.8
Unemployment Rate	17.9†	16.5†	14.7	16.4	+ 6.3	+ 21.5
Construction Activity						
Residential ($000's)	117†	310†	179	606	NA	NA
Nonresidential ($000's)	0	14	0	14	NA	NA
Total Value ($000's)	117	324	179	620	NA	NA
# of New Family Units	3	8	4	15	NA	NA
Taxable Sales ($000's)	–	–	–	9,483	– 6.9	– 4.0
Gaming Revenues ($000's)	–	–	–	338	– 2.9	+ 3.0
MINERAL						
Total Labor Force	3,700†	3,810†	3,840	3,783	+ 11.4	+ 10.2
Total Employment	3,350†	3,450†	3,520	3,440	+ 11.8	+ 8.4
Unemployment	350†	360†	320	343	+ 7.3	+ 32.1
Unemployment Rate	9.4†	9.4†	8.2	9.0	– 4.9	+ 18.9
Taxable Sales ($000's)	–	–	–	4,368	+ 2.1	+ 25.0
Gaming Revenues	–	–	–	1,064	+ .1	– .6
NYE						
Total Labor Force	3,490†	3,470†	3,440	3,466	+ 1.4	+ 2.1
Total Employment	3,090†	3,070†	3,070	3,076	– .1	– 2.8
Unemployment	400†	400†	370	390	+ 14.7	+ 69.6
Unemployment Rate	11.4†	11.6†	10.7	11.2	+ 14.2	+ 66.8
Taxable Sales ($000's)	–	–	–	14,784	– 33.3	– 2.7
Gaming Revenues ($000's)	–	–	–	1,030	– 9.2	– 5.5
PERSHING						
Total Labor Force	1,990†	1,950†	1,970	1,970	+ 6.1	+ 2.6
Total Employment	1,820†	1,800†	1,840	1,820	+ 7.1	+ .7
Unemployment	170†	150†	130	150	– 4.3	+ 32.4
Unemployment Rate	8.5†	7.7†	6.4	7.5	– 10.0	+ 27.0
Taxable Sales ($000's)	–	–	–	2,864	– 24.3	– 1.5
Gaming Revenues ($000's)	–	–	–	84	– 46.8	– 46.2

Nevada Statistical Data by County (Continued)

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1982 1st Quarter-1983
STOREY						
Total Labor Force	1,170†	1,190†	1,210	1,190	– 10.1	– 5.3
Total Employment	960†	1,010†	1,030	1,000	– 12.3	– 11.0
Unemployment	210†	180†	180	190	+ 3.6	+ 42.5
Unemployment Rate	17.5†	15.3†	14.7	13.8	+ 14.7	+ 48.4
Taxable Sales ($000's)	–	–	–	945	– 20.3	– 29.8
Gaming Revenues ($000's)	–	–	–	218	– 41.1	– 11.7
WHITE PINE						
Total Labor Force	4,420†	4,310†	4,430	4,386	– 3.9	+ 7.5
Total Employment	3,460†	3,560†	3,670	3,563	– 7.9	+ .4
Unemployment	960†	750†	760	823	+ 18.2	+ 55.3
Unemployment Rate	21.6†	17.3†	17.2	18.7	+ 22.0	+ 45.0
Construction Activity						
Total Value ($000's)	79	128	127	334	+ 1.5	NA
# of Permits	13	16	17	46	– 35.2	NA
Taxable Sales ($000's)	–	–	–	7,874	– 23.2	– 15.1
Gaming Revenues ($000's)	–	–	–	434	+ 2.1	– 4.2

† Revised.

Selected U.S. and Regional Economic Indicators

Consumer Price Index & Indexes of Selected Categories
All Urban Consumers
(1967 = 100%)

	January 1983	February 1983	March 1983	1st Quarter 1983	PERCENT CHANGE 4th Quarter-1982 1st Quarter-1983	PERCENT CHANGE 1st Quarter-1982 1st Quarter-1983
All Items	293.1	293.2	293.4	293.2	+ 0.0	+ 3.6
Food	288.1	289.0	290.5	289.2	+ 0.9	+ 2.4
Housing	317.9	318.5	318.6	318.3	– 0.1	+ 3.8
Apparel and Upkeep	191.0	192.0	194.5	192.5	– 1.2	+ 2.0
Transportation	293.0	289.9	287.4	290.1	– 1.8	+ .8
Medical Care	347.8	351.3	352.3	350.5	+ 2.6	+ 10.9

Producer Price Indexes for Selected Commodity Groupings
(1967 = 100%)

All Commodities	300.0	301.2	300.5	300.6	+ 0.0	+ .8
Fuel and Power	686.3	673.5	662.3	674.0	– 4.1	– 3.4
Machinery and Equipment	282.7	283.6	284.0	283.4	+ 0.7	+ 3.2
Metals and Metal Products	301.7	306.1	305.4	304.4	+ 1.1	– .1
Nonmetallic Mineral Products	321.5	321.9	321.9	321.8	+ 0.2	+ 1.3
Textile Products & Apparel	202.6	202.4	203.2	202.7	– 0.3	– .8

U.S. Labor Force

Civilian Labor Force (000's)	109,779	109,647	109,873	109,776	– 0.8	+ 1.3
Total Employment (000's)	97,262	97,265	97,994	97,507	– 1.9	– .6
Unemployment (000's)	12,517	12,382	11,879	12,259	+ 8.0	+ 19.2
Unemployment Rate	11.4	11.3	10.8	11.2	+ 8.7	+ 17.5
Unemployment Rate (Seasonally Adjusted)	10.4	10.4	10.3	10.4	– 2.8	+ 18.3

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